

## APPENDIX

In what follows we shall describe in detail the results of the SP algorithm including the decimations steps, over a 3-SAT constraint satisfaction problem composed of 20 variables and 100 clauses.

We shall adopt the following notation:

### CLAUSES:

Sat [  $s_i s_j s_k$  ] (  $i j k$  ) where  $s_i=1$  if variable  $X_i$  appears directed in the clause and  $s_i=0$  if  $X_i$  appears negated. The same for (b, $X_j$ ) and (c, $X_k$ ).

Example:

the clause( $X_1 \vee \sim X_2 \vee X_3$ ) is written as Sat[ 1 0 1 ] ( 1 2 3 ).

SURVEYS: just like simple warnings or messages are sent from clauses to variable, also Surveys propagate from clauses to variables. From clause "a" to its three variables, say i,j,k, we have three surveys giving the probability of the corresponding cavity biases. Boolean variables can take two values, say 0,1, therefore we will have two probabilities associated to the cavity biases  $p_0(a \rightarrow i)$ ,  $p_1(a \rightarrow i)$  plus the one corresponding to the null warning (saying that no constraint is enforced). The latter quantity will be never listed in that by normalization it always equals  $1 - p_0(a \rightarrow i) - p_1(a \rightarrow i)$ .

We shall adopt the following notation for the Surveys outgoing from clause "a":  
Sat[  $s_i s_j s_k$  ] (  $i j k$  ) { ( $p_0(a \rightarrow i), p_1(a \rightarrow i)$ ), ( $p_0(a \rightarrow j), p_1(a \rightarrow j)$ ), ( $p_0(a \rightarrow k), p_1(a \rightarrow k)$ ) }

LOCAL FIELDS: local fields give the probability of finding a variable forced to take a given value or to be under-constrained (no warnings received).

For each variable  $X_i$  we will give the variable index and the triple

{Prob[ $X_i=0$ ], Prob[ $X_i$  not forced], Prob[ $X_i=1$ ]}

Example: [1] {0.036401, 0.066197, 0.897402 } means that for variable number 1 we find {Prob[ $X_1=0$ ]=0.036401, Prob[ $X_1$  not forced]=0.066197, Prob[ $X_1=1$ ]=0.897402}

DECIMATION: along the computation variables will be fixed to some value (chosen according to their local field). We shall denote that by an arrow.

Example:

1 Sat[ 1 1 1 ] {2→1} ( 1 3 )

In clause number 1 (originally SAT[ 1 1 1 ] ( 1 2 3 )), the second variable has be fixed to "1". The clause now becomes a two clause depending only variable number 1 and 3.

We shall now proceed in giving the complete numerical details of the computation performed by our algorithm in solving a given specific problem.

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STEP 0:

5

INITIAL PROBLEM: 20 Boolean variables have to satisfy the following 100 3-clauses:

- 0 Sat[ 1 1 1] ( 14 20 18 )
- 1 Sat[ 1 1 1] ( 12 15 1 )
- 10 2 Sat[ 0 1 0] ( 11 4 7 )
- 3 Sat[ 1 1 0] ( 6 8 15 )
- 4 Sat[ 0 0 0] ( 10 5 15 )
- 5 Sat[ 0 1 0] ( 17 13 4 )
- 6 Sat[ 1 1 0] ( 1 16 3 )
- 15 7 Sat[ 1 0 0] ( 20 1 16 )
- 8 Sat[ 1 1 1] ( 11 7 4 )
- 9 Sat[ 1 0 0] ( 7 6 15 )
- 10 Sat[ 0 0 1] ( 10 12 20 )
- 11 Sat[ 1 0 1] ( 15 4 11 )
- 20 12 Sat[ 1 0 1] ( 18 4 6 )
- 13 Sat[ 0 1 0] ( 4 3 12 )
- 14 Sat[ 1 0 0] ( 2 7 16 )
- 15 Sat[ 0 0 1] ( 3 17 4 )
- 16 Sat[ 0 0 0] ( 5 19 15 )
- 25 17 Sat[ 1 1 0] ( 6 13 7 )
- 18 Sat[ 0 0 0] ( 4 20 7 )
- 19 Sat[ 1 0 0] ( 6 17 16 )
- 20 Sat[ 1 0 1] ( 5 15 13 )
- 21 Sat[ 1 1 0] ( 13 4 15 )
- 30 22 Sat[ 0 1 1] ( 12 5 18 )
- 23 Sat[ 1 0 0] ( 13 11 2 )
- 24 Sat[ 1 0 0] ( 7 10 20 )
- 25 Sat[ 1 0 1] ( 9 1 17 )
- 26 Sat[ 1 1 0] ( 17 16 1 )
- 35 27 Sat[ 1 1 0] ( 16 20 8 )
- 28 Sat[ 1 0 1] ( 18 1 5 )
- 29 Sat[ 0 1 1] ( 5 13 4 )
- 30 Sat[ 1 1 0] ( 6 17 14 )
- 31 Sat[ 1 0 1] ( 5 10 20 )
- 40 32 Sat[ 1 0 0] ( 4 5 20 )
- 33 Sat[ 1 1 0] ( 11 12 2 )
- 34 Sat[ 0 1 0] ( 7 6 17 )
- 35 Sat[ 1 1 0] ( 15 1 19 )

	36	Sat[ 0 0 0 ] ( 11 19 10 )
	37	Sat[ 0 1 1 ] ( 3 8 7 )
	38	Sat[ 1 1 0 ] ( 1 6 19 )
	39	Sat[ 1 1 1 ] ( 6 14 3 )
5	40	Sat[ 0 1 0 ] ( 3 12 5 )
	41	Sat[ 1 0 0 ] ( 7 11 14 )
	42	Sat[ 1 1 1 ] ( 4 18 7 )
	43	Sat[ 0 0 1 ] ( 14 11 19 )
	44	Sat[ 0 1 1 ] ( 15 5 6 )
10	45	Sat[ 1 0 0 ] ( 3 15 9 )
	46	Sat[ 1 0 0 ] ( 8 5 4 )
	47	Sat[ 0 0 0 ] ( 7 5 3 )
	48	Sat[ 0 1 1 ] ( 15 7 13 )
	49	Sat[ 0 1 1 ] ( 16 5 7 )
15	50	Sat[ 1 1 1 ] ( 8 7 10 )
	51	Sat[ 1 1 1 ] ( 6 10 13 )
	52	Sat[ 0 1 1 ] ( 8 15 10 )
	53	Sat[ 1 1 1 ] ( 17 9 18 )
	54	Sat[ 1 0 0 ] ( 19 1 16 )
20	55	Sat[ 1 0 1 ] ( 14 5 16 )
	56	Sat[ 1 1 1 ] ( 15 2 14 )
	57	Sat[ 1 1 1 ] ( 4 19 15 )
	58	Sat[ 0 1 0 ] ( 17 18 15 )
	59	Sat[ 0 1 1 ] ( 9 11 1 )
25	60	Sat[ 1 1 0 ] ( 6 20 14 )
	61	Sat[ 0 1 1 ] ( 7 5 19 )
	62	Sat[ 0 0 1 ] ( 12 19 16 )
	63	Sat[ 1 0 0 ] ( 19 6 17 )
	64	Sat[ 1 1 0 ] ( 13 11 7 )
30	65	Sat[ 0 1 0 ] ( 9 18 1 )
	66	Sat[ 0 0 0 ] ( 17 19 14 )
	67	Sat[ 1 1 1 ] ( 17 9 18 )
	68	Sat[ 1 0 0 ] ( 8 4 18 )
	69	Sat[ 1 0 0 ] ( 14 16 11 )
35	70	Sat[ 1 0 1 ] ( 15 19 13 )
	71	Sat[ 0 1 1 ] ( 14 7 8 )
	72	Sat[ 0 0 0 ] ( 5 11 19 )
	73	Sat[ 0 1 1 ] ( 12 13 17 )
	74	Sat[ 0 0 0 ] ( 3 20 7 )
40	75	Sat[ 0 1 1 ] ( 4 19 12 )
	76	Sat[ 1 0 0 ] ( 12 1 11 )
	77	Sat[ 1 0 1 ] ( 16 10 2 )
	78	Sat[ 1 1 0 ] ( 13 1 9 )

79 Sat[ 1 0 0] ( 6 10 11 )  
 80 Sat[ 1 1 1] ( 6 2 16 )  
 81 Sat[ 0 1 1] ( 10 5 8 )  
 82 Sat[ 0 0 0] ( 6 16 3 )  
 5 83 Sat[ 0 1 1] ( 9 3 1 )  
 84 Sat[ 1 1 1] ( 17 14 8 )  
 85 Sat[ 0 0 0] ( 12 15 11 )  
 86 Sat[ 0 1 1] ( 8 3 18 )  
 87 Sat[ 0 0 1] ( 15 2 19 )  
 10 88 Sat[ 0 1 1] ( 7 19 5 )  
 89 Sat[ 1 0 1] ( 4 11 10 )  
 90 Sat[ 1 0 1] ( 17 12 8 )  
 91 Sat[ 0 1 1] ( 4 8 6 )  
 92 Sat[ 1 1 0] ( 6 12 3 )  
 15 93 Sat[ 1 0 0] ( 16 7 17 )  
 94 Sat[ 0 1 1] ( 15 13 20 )  
 95 Sat[ 1 0 1] ( 18 11 16 )  
 96 Sat[ 1 1 1] ( 8 2 17 )  
 97 Sat[ 0 1 0] ( 13 11 19 )  
 20 98 Sat[ 0 0 1] ( 4 19 9 )  
 99 Sat[ 1 0 0] ( 15 9 13 )

Surveys obtained by convergence of SP:

Sat[ 1 1 1] ( 14 20 18 )  
 25 {(0.000341,0.000000)(0.000250,0.000000)(0.161406,0.000000)}  
 Sat[ 1 1 1] ( 12 15 1 )  
 {(0.366268,0.000000)(0.456078,0.000000)(0.199041,0.000000)}  
 Sat[ 0 1 0] ( 11 4 7 )  
 {(0.000000,0.370421)(0.184106,0.000000)(0.000000,0.184764)}  
 30 Sat[ 1 1 0] ( 6 8 15 )  
 {(0.064017,0.000000)(0.181798,0.000000)(0.000000,0.022080)}  
 Sat[ 0 0 0] ( 10 5 15 )  
 {(0.000000,0.617518)(0.000000,0.352673)(0.000000,0.342351)}  
 Sat[ 0 1 0] ( 17 13 4 )  
 35 {(0.000000,0.010877)(0.047850,0.000000)(0.000000,0.003192)}  
 Sat[ 1 1 0] ( 1 16 3 )  
 {(0.050351,0.000000)(0.128653,0.000000)(0.000000,0.318466)}  
 Sat[ 1 0 0] ( 20 1 16 )  
 {(0.029869,0.000000)(0.000000,0.284175)(0.000000,0.023908)}  
 40 Sat[ 1 1 1] ( 11 7 4 )  
 {(0.491835,0.000000)(0.635059,0.000000)(0.563177,0.000000)}  
 Sat[ 1 0 0] ( 7 6 15 )  
 {(0.765622,0.000000)(0.000000,0.662941)(0.000000,0.652725)}

Sat[ 0 0 1] ( 10 12 20 )  
 {(0.000000,0.274999)(0.000000,0.151082)(0.158245,0.000000)}  
 Sat[ 1 0 1] ( 15 4 11 )  
 {(0.380755,0.000000)(0.000000,0.288651)(0.179718,0.000000)}  
 5 Sat[ 1 0 1] ( 18 4 6 )  
 {(0.096030,0.000000)(0.000000,0.000161)(0.000272,0.000000)}  
 Sat[ 0 1 0] ( 4 3 12 )  
 {(0.000000,0.608618)(0.436797,0.000000)(0.000000,0.558298)}  
 Sat[ 1 0 0] ( 2 7 16 )  
 10 {(0.627141,0.000000)(0.000000,0.652549)(0.000000,0.639786)}  
 Sat[ 0 0 1] ( 3 17 4 )  
 {(0.000000,0.069936)(0.000000,0.061244)(0.013480,0.000000)}  
 Sat[ 0 0 0] ( 5 19 15 )  
 {(0.000000,0.244201)(0.000000,0.576100)(0.000000,0.235899)}  
 15 Sat[ 1 1 0] ( 6 13 7 )  
 {(0.016550,0.000000)(0.135017,0.000000)(0.000000,0.007134)}  
 Sat[ 0 0 0] ( 4 20 7 )  
 {(0.000000,0.276420)(0.000000,0.297772)(0.000000,0.216290)}  
 Sat[ 1 0 0] ( 6 17 16 )  
 20 {(0.081114,0.000000)(0.000000,0.151937)(0.000000,0.034412)}  
 Sat[ 1 0 1] ( 5 15 13 )  
 {(0.022662,0.000000)(0.000000,0.008025)(0.185200,0.000000)}  
 Sat[ 1 1 0] ( 13 4 15 )  
 {(0.412745,0.000000)(0.031207,0.000000)(0.000000,0.024405)}  
 25 Sat[ 0 1 1] ( 12 5 18 )  
 {(0.000000,0.000175)(0.000345,0.000000)(0.124858,0.000000)}  
 Sat[ 1 0 0] ( 13 11 2 )  
 {(0.062770,0.000000)(0.000000,0.007940)(0.000000,0.005916)}  
 Sat[ 1 0 0] ( 7 10 20 )  
 30 {(0.105451,0.000000)(0.000000,0.173805)(0.000000,0.118776)}  
 Sat[ 1 0 1] ( 9 1 17 )  
 {(0.089398,0.000000)(0.000000,0.722776)(0.116281,0.000000)}  
 Sat[ 1 1 0] ( 17 16 1 )  
 {(0.015604,0.000000)(0.034261,0.000000)(0.000000,0.239017)}  
 35 Sat[ 1 1 0] ( 16 20 8 )  
 {(0.591866,0.000000)(0.498904,0.000000)(0.000000,0.343549)}  
 Sat[ 1 0 1] ( 18 1 5 )  
 {(0.009165,0.000000)(0.000000,0.000155)(0.000022,0.000000)}  
 Sat[ 0 1 1] ( 5 13 4 )  
 40 {(0.000000,0.023666)(0.394199,0.000000)(0.028960,0.000000)}  
 Sat[ 1 1 0] ( 6 17 14 )  
 {(0.399121,0.000000)(0.179899,0.000000)(0.000000,0.259905)}

Sat[ 1 0 1] ( 5 10 20 )  
 {(0.126767,0.000000)(0.000000,0.135768)(0.072235,0.000000)}  
 Sat[ 1 0 0] ( 4 5 20 )  
 {(0.434140,0.000000)(0.000000,0.384065)(0.000000,0.542096)}  
 5 Sat[ 1 1 0] ( 11 12 2 )  
 {(0.187188,0.000000)(0.308185,0.000000)(0.000000,0.372927)}  
 Sat[ 0 1 0] ( 7 6 17 )  
 {(0.000000,0.033970)(0.076097,0.000000)(0.000000,0.143220)}  
 Sat[ 1 1 0] ( 15 1 19 )  
 10 {(0.193339,0.000000)(0.066321,0.000000)(0.000000,0.280048)}  
 Sat[ 0 0 0] ( 11 19 10 )  
 {(0.000000,0.041100)(0.000000,0.053218)(0.000000,0.038090)}  
 Sat[ 0 1 1] ( 3 8 7 )  
 {(0.000000,0.031879)(0.043727,0.000000)(0.008011,0.000000)}  
 15 Sat[ 1 1 0] ( 1 6 19 )  
 {(0.057607,0.000000)(0.187189,0.000000)(0.000000,0.250790)}  
 Sat[ 1 1 1] ( 6 14 3 )  
 {(0.346107,0.000000)(0.268351,0.000000)(0.134974,0.000000)}  
 Sat[ 0 1 0] ( 3 12 5 )  
 20 {(0.000000,0.287789)(0.096363,0.000000)(0.000000,0.056322)}  
 Sat[ 1 0 0] ( 7 11 14 )  
 {(0.124466,0.000000)(0.000000,0.215454)(0.000000,0.115821)}  
 Sat[ 1 1 1] ( 4 18 7 )  
 {(0.000330,0.000000)(0.232728,0.000000)(0.000445,0.000000)}  
 25 Sat[ 0 0 1] ( 14 11 19 )  
 {(0.000000,0.285181)(0.000000,0.455443)(0.178735,0.000000)}  
 Sat[ 0 1 1] ( 15 5 6 )  
 {(0.000000,0.085690)(0.211741,0.000000)(0.221124,0.000000)}  
 Sat[ 1 0 0] ( 3 15 9 )  
 30 {(0.012004,0.000000)(0.000000,0.013424)(0.000000,0.586545)}  
 Sat[ 1 0 0] ( 8 5 4 )  
 {(0.293908,0.000000)(0.000000,0.042394)(0.000000,0.070405)}  
 Sat[ 0 0 0] ( 7 5 3 )  
 {(0.000000,0.115832)(0.000000,0.095853)(0.000000,0.417843)}  
 35 Sat[ 0 1 1] ( 15 7 13 )  
 {(0.000000,0.015422)(0.026502,0.000000)(0.305596,0.000000)}  
 Sat[ 0 1 1] ( 16 5 7 )  
 {(0.000000,0.152492)(0.296580,0.000000)(0.203640,0.000000)}  
 Sat[ 1 1 1] ( 8 7 10 )  
 40 {(0.291492,0.000000)(0.067737,0.000000)(0.043428,0.000000)}  
 Sat[ 1 1 1] ( 6 10 13 )  
 {(0.020292,0.000000)(0.007371,0.000000)(0.161155,0.000000)}

Sat[ 0 1 1] ( 8 15 10 )  
 {(0.000000,0.519939)(0.784337,0.000000)(0.592768,0.000000)}  
 Sat[ 1 1 1] ( 17 9 18 )  
 {(0.001945,0.000000)(0.001452,0.000000)(0.697678,0.000000)}  
 5 Sat[ 1 0 0] ( 19 1 16 )  
 {(0.042711,0.000000)(0.000000,0.503076)(0.000000,0.058786)}  
 Sat[ 1 0 1] ( 14 5 16 )  
 {(0.297754,0.000000)(0.000000,0.174512)(0.311432,0.000000)}  
 Sat[ 1 1 1] ( 15 2 14 )  
 10 {(0.262589,0.000000)(0.131955,0.000000)(0.215996,0.000000)}  
 Sat[ 1 1 1] ( 4 19 15 )  
 {(0.416576,0.000000)(0.326317,0.000000)(0.600656,0.000000)}  
 Sat[ 0 1 0] ( 17 18 15 )  
 {(0.000000,0.000480)(0.084721,0.000000)(0.000000,0.000078)}  
 15 Sat[ 0 1 1] ( 9 11 1 )  
 {(0.000000,0.674079)(0.018812,0.000000)(0.015696,0.000000)}  
 Sat[ 1 1 0] ( 6 20 14 )  
 {(0.249556,0.000000)(0.144383,0.000000)(0.000000,0.149529)}  
 Sat[ 0 1 1] ( 7 5 19 )  
 20 {(0.000000,0.392321)(0.588598,0.000000)(0.303667,0.000000)}  
 Sat[ 0 0 1] ( 12 19 16 )  
 {(0.000000,0.066436)(0.000000,0.177154)(0.098682,0.000000)}  
 Sat[ 1 0 0] ( 19 6 17 )  
 {(0.198112,0.000000)(0.000000,0.228359)(0.000000,0.634855)}  
 25 Sat[ 1 1 0] ( 13 11 7 )  
 {(0.425231,0.000000)(0.024824,0.000000)(0.000000,0.032933)}  
 Sat[ 0 1 0] ( 9 18 1 )  
 {(0.000000,0.000022)(0.000252,0.000000)(0.000000,0.000004)}  
 Sat[ 0 0 0] ( 17 19 14 )  
 30 {(0.000000,0.078507)(0.000000,0.057503)(0.000000,0.021711)}  
 Sat[ 1 1 1] ( 17 9 18 )  
 {(0.001945,0.000000)(0.001452,0.000000)(0.697686,0.000000)}  
 Sat[ 1 0 0] ( 8 4 18 )  
 {(0.429496,0.000000)(0.000000,0.120472)(0.000000,0.052890)}  
 35 Sat[ 1 0 0] ( 14 16 11 )  
 {(0.162540,0.000000)(0.000000,0.101592)(0.000000,0.236898)}  
 Sat[ 1 0 1] ( 15 19 13 )  
 {(0.004424,0.000000)(0.000000,0.007160)(0.044000,0.000000)}  
 Sat[ 0 1 1] ( 14 7 8 )  
 40 {(0.000000,0.038108)(0.041223,0.000000)(0.195780,0.000000)}  
 Sat[ 0 0 0] ( 5 11 19 )  
 {(0.000000,0.045760)(0.000000,0.133327)(0.000000,0.167874)}

Sat[ 0 1 1] ( 12 13 17 )  
 {(0.000000,0.028905)(0.364938,0.000000)(0.020050,0.000000)}  
 Sat[ 0 0 0] ( 3 20 7 )  
 {(0.000000,0.216970)(0.000000,0.072093)(0.000000,0.048138)}  
 5 Sat[ 0 1 1] ( 4 19 12 )  
 {(0.000000,0.484623)(0.314511,0.000000)(0.495488,0.000000)}  
 Sat[ 1 0 0] ( 12 1 11 )  
 {(0.008620,0.000000)(0.000000,0.084390)(0.000000,0.015370)}  
 Sat[ 1 0 1] ( 16 10 2 )  
 10 {(0.184795,0.000000)(0.000000,0.238980)(0.104957,0.000000)}  
 Sat[ 1 1 0] ( 13 1 9 )  
 {(0.006356,0.000000)(0.000183,0.000000)(0.000000,0.023192)}  
 Sat[ 1 0 0] ( 6 10 11 )  
 {(0.054849,0.000000)(0.000000,0.056084)(0.000000,0.060434)}  
 15 Sat[ 1 1 1] ( 6 2 16 )  
 {(0.240080,0.000000)(0.107769,0.000000)(0.189307,0.000000)}  
 Sat[ 0 1 1] ( 10 5 8 )  
 {(0.000000,0.019824)(0.018347,0.000000)(0.060305,0.000000)}  
 Sat[ 0 0 0] ( 6 16 3 )  
 20 {(0.000000,0.104862)(0.000000,0.120422)(0.000000,0.442327)}  
 Sat[ 0 1 1] ( 9 3 1 )  
 {(0.000000,0.729823)(0.022608,0.000000)(0.020403,0.000000)}  
 Sat[ 1 1 1] ( 17 14 8 )  
 {(0.034927,0.000000)(0.070576,0.000000)(0.262546,0.000000)}  
 25 Sat[ 0 0 0] ( 12 15 11 )  
 {(0.000000,0.246929)(0.000000,0.183881)(0.000000,0.430671)}  
 Sat[ 0 1 1] ( 8 3 18 )  
 {(0.000000,0.001768)(0.001954,0.000000)(0.722010,0.000000)}  
 Sat[ 0 0 1] ( 15 2 19 )  
 30 {(0.000000,0.617965)(0.000000,0.801513)(0.585600,0.000000)}  
 Sat[ 0 1 1] ( 7 19 5 )  
 {(0.000000,0.392315)(0.303690,0.000000)(0.588623,0.000000)}  
 Sat[ 1 0 1] ( 4 11 10 )  
 {(0.236251,0.000000)(0.000000,0.446458)(0.206885,0.000000)}  
 35 Sat[ 1 0 1] ( 17 12 8 )  
 {(0.058514,0.000000)(0.000000,0.082920)(0.379400,0.000000)}  
 Sat[ 0 1 1] ( 4 8 6 )  
 {(0.000000,0.019737)(0.099638,0.000000)(0.032944,0.000000)}  
 Sat[ 1 1 0] ( 6 12 3 )  
 40 {(0.043768,0.000000)(0.027480,0.000000)(0.000000,0.096715)}  
 Sat[ 1 0 0] ( 16 7 17 )  
 {(0.080761,0.000000)(0.000000,0.048296)(0.000000,0.194353)}



Sat[ 0 1 1] ( 15 13 20 )  
 {(0.000000,0.018448)(0.345575,0.000000)(0.028081,0.000000)}  
 Sat[ 1 0 1] ( 18 11 16 )  
 {(0.069273,0.000000)(0.000000,0.000211)(0.000141,0.000000)}  
 5 Sat[ 1 1 1] ( 8 2 17 )  
 {(0.477790,0.000000)(0.097216,0.000000)(0.085097,0.000000)}  
 Sat[ 0 1 0] ( 13 11 19 )  
 {(0.000000,0.469933)(0.528990,0.000000)(0.000000,0.836465)}  
 Sat[ 0 0 1] ( 4 19 9 )  
 10 {(0.000000,0.259595)(0.000000,0.463005)(0.127525,0.000000)}  
 Sat[ 1 0 0] ( 15 9 13 )  
 {(0.008740,0.000000)(0.000000,0.253115)(0.000000,0.002474)}

Local fields:

15 [1] {0.036401,0.066197,0.897402 }  
 [2] {0.289026,0.087968,0.623006 }  
 [3] {0.101837,0.090140,0.808023 }  
 [4] {0.403023,0.036656,0.560321 }  
 [5] {0.689450,0.058805,0.251745 }  
 20 [6] {0.689499,0.072289,0.238212 }  
 [7] {0.557957,0.026921,0.415122 }  
 [8] {0.893026,0.033652,0.073322 }  
 [9] {0.006920,0.026377,0.966703 }  
 [10] {0.232639,0.102904,0.664458 }  
 25 [11] {0.214896,0.038727,0.746377 }  
 [12] {0.495796,0.118351,0.385853 }  
 [13] {0.945504,0.028815,0.025681 }  
 [14] {0.450554,0.205685,0.343762 }  
 [15] {0.721522,0.012500,0.265978 }  
 30 [16] {0.589983,0.087746,0.322271 }  
 [17] {0.117364,0.161353,0.721284 }  
 [18] {0.988484,0.010907,0.000609 }  
 [19] {0.163911,0.010184,0.825905 }  
 35 [20] {0.363102,0.167461,0.469437 }

STEP 1:

fixing var 18 to 1. (local field: [18] {0.988484,0.010907,0.000609 })

40 Clauses in which var 18 appears:

0 Sat[ 1 1 1] ( 14 20 18 )  
 12 Sat[ 1 0 1] ( 18 4 6 )  
 22 Sat[ 0 1 1] ( 12 5 18 )

28 Sat[ 1 0 1] ( 18 1 5 )  
 42 Sat[ 1 1 1] ( 4 18 7 )  
 53 Sat[ 1 1 1] ( 17 9 18 )  
 58 Sat[ 0 1 0] ( 17 18 15 )  
 5 65 Sat[ 0 1 0] ( 9 18 1 )  
 67 Sat[ 1 1 1] ( 17 9 18 )  
 68 Sat[ 1 0 0] ( 8 4 18 )  
 86 Sat[ 0 1 1] ( 8 3 18 )  
 95 Sat[ 1 0 1] ( 18 11 16 )

10 The clauses in which s\_18=1 are satisfied and eliminated.

New surveys obtained by convergence of SP:

Sat[ 1 1 1]{2->1} ( 14 20 ) {(0.000000,0.000000)(0.000000,0.000000)}

15 Sat[ 1 1 1] ( 12 15 1 )  
 {(0.365819,0.000000)(0.455933,0.000000)(0.198635,0.000000)}

Sat[ 0 1 0] ( 11 4 7 )  
 {(0.000000,0.370274)(0.183870,0.000000)(0.000000,0.184538)}

Sat[ 1 1 0] ( 6 8 15 )  
 20 {(0.063481,0.000000)(0.181894,0.000000)(0.000000,0.021884)}

Sat[ 0 0 0] ( 10 5 15 )  
 {(0.000000,0.618018)(0.000000,0.353109)(0.000000,0.342691)}

Sat[ 0 1 0] ( 17 13 4 )  
 {(0.000000,0.010839)(0.047374,0.000000)(0.000000,0.003150)}

25 Sat[ 1 1 0] ( 1 16 3 )  
 {(0.050197,0.000000)(0.128356,0.000000)(0.000000,0.318430)}

Sat[ 1 0 0] ( 20 1 16 )  
 {(0.029687,0.000000)(0.000000,0.284156)(0.000000,0.023759)}

Sat[ 1 1 1] ( 11 7 4 )  
 30 {(0.492176,0.000000)(0.635354,0.000000)(0.563572,0.000000)}

Sat[ 1 0 0] ( 7 6 15 )  
 {(0.765815,0.000000)(0.000000,0.663336)(0.000000,0.652883)}

Sat[ 0 0 1] ( 10 12 20 )  
 {(0.000000,0.274938)(0.000000,0.151084)(0.158223,0.000000)}

35 Sat[ 1 0 1] ( 15 4 11 )  
 {(0.380704,0.000000)(0.000000,0.288286)(0.179415,0.000000)}

Sat[ 1 0 1]{0->1} ( 4 6 ) {(0.000000,0.000000)(0.000000,0.000000)}

Sat[ 0 1 0] ( 4 3 12 )  
 {(0.000000,0.608621)(0.436792,0.000000)(0.000000,0.558341)}

40 Sat[ 1 0 0] ( 2 7 16 )  
 {(0.627547,0.000000)(0.000000,0.653203)(0.000000,0.640348)}

Sat[ 0 0 1] ( 3 17 4 )  
 {(0.000000,0.069231)(0.000000,0.061041)(0.013303,0.000000)}

Sat[ 0 0 0 ] ( 5 19 15 )  
 {(0.000000,0.244007)(0.000000,0.576444)(0.000000,0.235629)}  
 Sat[ 1 1 0 ] ( 6 13 7 )  
 {(0.016498,0.000000)(0.135013,0.000000)(0.000000,0.007114)}  
 5 Sat[ 0 0 0 ] ( 4 20 7 )  
 {(0.000000,0.276471)(0.000000,0.297708)(0.000000,0.216347)}  
 Sat[ 1 0 0 ] ( 6 17 16 )  
 {(0.080322,0.000000)(0.000000,0.151874)(0.000000,0.034064)}  
 Sat[ 1 0 1 ] ( 5 15 13 )  
 10 {(0.022605,0.000000)(0.000000,0.007996)(0.185211,0.000000)}  
 Sat[ 1 1 0 ] ( 13 4 15 )  
 {(0.412947,0.000000)(0.031141,0.000000)(0.000000,0.024338)}  
 Sat[ 0 1 1 ] {2->1} ( 12 5 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 1 0 0 ] ( 13 11 2 )  
 15 {(0.062616,0.000000)(0.000000,0.007904)(0.000000,0.005890)}  
 Sat[ 1 0 0 ] ( 7 10 20 )  
 {(0.105521,0.000000)(0.000000,0.173941)(0.000000,0.118831)}  
 Sat[ 1 0 1 ] ( 9 1 17 )  
 {(0.089042,0.000000)(0.000000,0.723139)(0.115796,0.000000)}  
 20 Sat[ 1 1 0 ] ( 17 16 1 )  
 {(0.015503,0.000000)(0.034071,0.000000)(0.000000,0.239052)}  
 Sat[ 1 1 0 ] ( 16 20 8 )  
 {(0.592550,0.000000)(0.499570,0.000000)(0.000000,0.343885)}  
 Sat[ 1 0 1 ] {0->1} ( 1 5 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 25 Sat[ 0 1 1 ] ( 5 13 4 )  
 {(0.000000,0.023599)(0.394261,0.000000)(0.028883,0.000000)}  
 Sat[ 1 1 0 ] ( 6 17 14 )  
 {(0.399228,0.000000)(0.179930,0.000000)(0.000000,0.260146)}  
 Sat[ 1 0 1 ] ( 5 10 20 )  
 30 {(0.126740,0.000000)(0.000000,0.135649)(0.072178,0.000000)}  
 Sat[ 1 0 0 ] ( 4 5 20 )  
 {(0.434452,0.000000)(0.000000,0.384331)(0.000000,0.542343)}  
 Sat[ 1 1 0 ] ( 11 12 2 )  
 {(0.186871,0.000000)(0.307832,0.000000)(0.000000,0.372813)}  
 35 Sat[ 0 1 0 ] ( 7 6 17 )  
 {(0.000000,0.033628)(0.075319,0.000000)(0.000000,0.143141)}  
 Sat[ 1 1 0 ] ( 15 1 19 )  
 {(0.192922,0.000000)(0.066043,0.000000)(0.000000,0.279639)}  
 Sat[ 0 0 0 ] ( 11 19 10 )  
 40 {(0.000000,0.041016)(0.000000,0.053157)(0.000000,0.037967)}  
 Sat[ 0 1 1 ] ( 3 8 7 )  
 {(0.000000,0.031588)(0.043605,0.000000)(0.007913,0.000000)}

Sat[ 1 1 0] ( 1 6 19 )  
 {(0.057505,0.000000)(0.186889,0.000000)(0.000000,0.250910)}  
 Sat[ 1 1 1] ( 6 14 3 )  
 {(0.346154,0.000000)(0.268488,0.000000)(0.135037,0.000000)}  
 5 Sat[ 0 1 0] ( 3 12 5 )  
 {(0.000000,0.287738)(0.096137,0.000000)(0.000000,0.056154)}  
 Sat[ 1 0 0] ( 7 11 14 )  
 {(0.124274,0.000000)(0.000000,0.215362)(0.000000,0.115711)}  
 Sat[ 1 1 1]{1->1} ( 4 7 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 10 Sat[ 0 0 1] ( 14 11 19 )  
 {(0.000000,0.284934)(0.000000,0.455306)(0.178426,0.000000)}  
 Sat[ 0 1 1] ( 15 5 6 )  
 {(0.000000,0.085687)(0.211921,0.000000)(0.221181,0.000000)}  
 Sat[ 1 0 0] ( 3 15 9 )  
 15 {(0.011791,0.000000)(0.000000,0.013180)(0.000000,0.586908)}  
 Sat[ 1 0 0] ( 8 5 4 )  
 {(0.293810,0.000000)(0.000000,0.042001)(0.000000,0.069784)}  
 Sat[ 0 0 0] ( 7 5 3 )  
 {(0.000000,0.115536)(0.000000,0.095567)(0.000000,0.417751)}  
 20 Sat[ 0 1 1] ( 15 7 13 )  
 {(0.000000,0.015382)(0.026443,0.000000)(0.305839,0.000000)}  
 Sat[ 0 1 1] ( 16 5 7 )  
 {(0.000000,0.152458)(0.296697,0.000000)(0.203578,0.000000)}  
 Sat[ 1 1 1] ( 8 7 10 )  
 25 {(0.291456,0.000000)(0.067140,0.000000)(0.043039,0.000000)}  
 Sat[ 1 1 1] ( 6 10 13 )  
 {(0.020235,0.000000)(0.007350,0.000000)(0.161220,0.000000)}  
 Sat[ 0 1 1] ( 8 15 10 )  
 {(0.000000,0.520309)(0.785036,0.000000)(0.593354,0.000000)}  
 30 Sat[ 1 1 1]{2->1} ( 17 9 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 1 0 0] ( 19 1 16 )  
 {(0.042476,0.000000)(0.000000,0.503253)(0.000000,0.058485)}  
 Sat[ 1 0 1] ( 14 5 16 )  
 {(0.297775,0.000000)(0.000000,0.174490)(0.311460,0.000000)}  
 35 Sat[ 1 1 1] ( 15 2 14 )  
 {(0.262742,0.000000)(0.131768,0.000000)(0.215862,0.000000)}  
 Sat[ 1 1 1] ( 4 19 15 )  
 {(0.416160,0.000000)(0.325868,0.000000)(0.600664,0.000000)}  
 Sat[ 0 1 0]{1->1} ( 17 15 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 40 Sat[ 0 1 1] ( 9 11 1 )  
 {(0.000000,0.674415)(0.018483,0.000000)(0.015418,0.000000)}  
 Sat[ 1 1 0] ( 6 20 14 )  
 {(0.249398,0.000000)(0.144347,0.000000)(0.000000,0.149529)}

Sat[ 0 1 1] ( 7 5 19 )  
 {(0.000000,0.392373)(0.588712,0.000000)(0.303591,0.000000)}  
 Sat[ 0 0 1] ( 12 19 16 )  
 {(0.000000,0.066276)(0.000000,0.177061)(0.098460,0.000000)}  
 5 Sat[ 1 0 0] ( 19 6 17 )  
 {(0.195969,0.000000)(0.000000,0.226125)(0.000000,0.634113)}  
 Sat[ 1 1 0] ( 13 11 7 )  
 {(0.425226,0.000000)(0.024745,0.000000)(0.000000,0.032843)}  
 Sat[ 0 1 0]{1->1} ( 9 1 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 10 Sat[ 0 0 0] ( 17 19 14 )  
 {(0.000000,0.078253)(0.000000,0.056885)(0.000000,0.021435)}  
 Sat[ 1 1 1]{2->1} ( 17 9 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 1 0 0]{2->1} ( 8 4 ) {(0.434561,0.000000)(0.000000,0.121693)}  
 Sat[ 1 0 0] ( 14 16 11 )  
 15 {(0.162384,0.000000)(0.000000,0.101468)(0.000000,0.236878)}  
 Sat[ 1 0 1] ( 15 19 13 )  
 {(0.004400,0.000000)(0.000000,0.007124)(0.043825,0.000000)}  
 Sat[ 0 1 1] ( 14 7 8 )  
 {(0.000000,0.037757)(0.040814,0.000000)(0.195645,0.000000)}  
 20 Sat[ 0 0 0] ( 5 11 19 )  
 {(0.000000,0.045601)(0.000000,0.133039)(0.000000,0.167690)}  
 Sat[ 0 1 1] ( 12 13 17 )  
 {(0.000000,0.028841)(0.365053,0.000000)(0.019991,0.000000)}  
 Sat[ 0 0 0] ( 3 20 7 )  
 25 {(0.000000,0.216966)(0.000000,0.071899)(0.000000,0.048028)}  
 Sat[ 0 1 1] ( 4 19 12 )  
 {(0.000000,0.484751)(0.314530,0.000000)(0.495666,0.000000)}  
 Sat[ 1 0 0] ( 12 1 11 )  
 {(0.008555,0.000000)(0.000000,0.084264)(0.000000,0.015270)}  
 30 Sat[ 1 0 1] ( 16 10 2 )  
 {(0.184976,0.000000)(0.000000,0.239131)(0.104964,0.000000)}  
 Sat[ 1 1 0] ( 13 1 9 )  
 {(0.006238,0.000000)(0.000179,0.000000)(0.000000,0.023126)}  
 Sat[ 1 0 0] ( 6 10 11 )  
 35 {(0.054790,0.000000)(0.000000,0.056043)(0.000000,0.060451)}  
 Sat[ 1 1 1] ( 6 2 16 )  
 {(0.240260,0.000000)(0.107820,0.000000)(0.189542,0.000000)}  
 Sat[ 0 1 1] ( 10 5 8 )  
 {(0.000000,0.019631)(0.018176,0.000000)(0.060260,0.000000)}  
 40 Sat[ 0 0 0] ( 6 16 3 )  
 {(0.000000,0.104559)(0.000000,0.120022)(0.000000,0.442094)}  
 Sat[ 0 1 1] ( 9 3 1 )  
 {(0.000000,0.730067)(0.022211,0.000000)(0.020038,0.000000)}

Sat[ 1 1 1] ( 17 14 8 )  
 {(0.034600,0.000000)(0.069984,0.000000)(0.262538,0.000000)}  
 Sat[ 0 0 0] ( 12 15 11 )  
 {(0.000000,0.246857)(0.000000,0.183712)(0.000000,0.430826)}  
 5 Sat[ 0 1 1]{2->1} ( 8 3 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 0 0 1] ( 15 2 19 )  
 {(0.000000,0.618188)(0.000000,0.801983)(0.585869,0.000000)}  
 Sat[ 0 1 1] ( 7 19 5 )  
 {(0.000000,0.392301)(0.303529,0.000000)(0.588656,0.000000)}  
 10 Sat[ 1 0 1] ( 4 11 10 )  
 {(0.236058,0.000000)(0.000000,0.446466)(0.206694,0.000000)}  
 Sat[ 1 0 1] ( 17 12 8 )  
 {(0.057972,0.000000)(0.000000,0.082221)(0.379374,0.000000)}  
 Sat[ 0 1 1] ( 4 8 6 )  
 15 {(0.000000,0.019561)(0.099637,0.000000)(0.032642,0.000000)}  
 Sat[ 1 1 0] ( 6 12 3 )  
 {(0.043645,0.000000)(0.027413,0.000000)(0.000000,0.096707)}  
 Sat[ 1 0 0] ( 16 7 17 )  
 {(0.079925,0.000000)(0.000000,0.047785)(0.000000,0.194125)}  
 20 Sat[ 0 1 1] ( 15 13 20 )  
 {(0.000000,0.018396)(0.345761,0.000000)(0.028021,0.000000)}  
 Sat[ 1 0 1]{0->1} ( 11 16 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 1 1 1] ( 8 2 17 )  
 {(0.478195,0.000000)(0.096497,0.000000)(0.084477,0.000000)}  
 25 Sat[ 0 1 0] ( 13 11 19 )  
 {(0.000000,0.469305)(0.528325,0.000000)(0.000000,0.836426)}  
 Sat[ 0 0 1] ( 4 19 9 )  
 {(0.000000,0.259174)(0.000000,0.462945)(0.127264,0.000000)}  
 Sat[ 1 0 0] ( 15 9 13 )  
 30 {(0.008570,0.000000)(0.000000,0.252708)(0.000000,0.002421)}

New local fields:

[1] {0.036181,0.066120,0.897698 }  
 [2] {0.288620,0.087829,0.623551 }  
 35 [3] {0.101565,0.090327,0.808108 }  
 [4] {0.403003,0.036673,0.560324 }  
 [5] {0.689546,0.058805,0.251648 }  
 [6] {0.689185,0.072511,0.238303 }  
 [7] {0.557820,0.026922,0.415258 }  
 40 [8] {0.893983,0.033367,0.072650 }  
 [9] {0.006787,0.026323,0.966890 }  
 [10] {0.232645,0.102791,0.664564 }  
 [11] {0.214699,0.038779,0.746522 }

```

[12] {0.495702,0.118512,0.385785 }
[13] {0.945587,0.028807,0.025606 }
[14] {0.450347,0.205925,0.343728 }
[15] {0.721960,0.012476,0.265563 }
5 [16] {0.590070,0.087718,0.322212 }
[17] {0.116208,0.162129,0.721663 }
[19] {0.163526,0.010199,0.826275 }
[20] {0.363269,0.167366,0.469364 }

```

10 STEP 2:

fixing var 9 to 0 (local field: [9] {0.006787,0.026323,0.966890 })

Clauses in var 9 appears:

```

15 25 Sat[ 1 0 1] ( 9 1 17 )
45 Sat[ 1 0 0] ( 3 15 9 )
53 Sat[ 1 1 1]{2->1} ( 17 9 )
59 Sat[ 0 1 1] ( 9 11 1 )
65 Sat[ 0 1 0]{1->1} ( 9 1 )
20 67 Sat[ 1 1 1]{2->1} ( 17 9 )
78 Sat[ 1 1 0] ( 13 1 9 )
83 Sat[ 0 1 1] ( 9 3 1 )
98 Sat[ 0 0 1] ( 4 19 9 )
99 Sat[ 1 0 0] ( 15 9 13 )

```

25

The clauses in which s\_9=0 are satisfied and eliminated.

New surveys obtained by convergence of SP:

```

Sat[ 1 1 1]{2->1} ( 14 20 ) {(0.000000,0.000000)(0.000000,0.000000)}
30 Sat[ 1 1 1] ( 12 15 1 )
{(0.366938,0.000000)(0.460507,0.000000)(0.197038,0.000000)}
Sat[ 0 1 0] ( 11 4 7 )
{(0.000000,0.372084)(0.180195,0.000000)(0.000000,0.180793)}
Sat[ 1 1 0] ( 6 8 15 )
35 {(0.064017,0.000000)(0.182919,0.000000)(0.000000,0.021938)}
Sat[ 0 0 0] ( 10 5 15 )
{(0.000000,0.624746)(0.000000,0.353131)(0.000000,0.343372)}
Sat[ 0 1 0] ( 17 13 4 )
{(0.000000,0.010307)(0.045900,0.000000)(0.000000,0.002935)}
40 Sat[ 1 1 0] ( 1 16 3 )
{(0.047518,0.000000)(0.123219,0.000000)(0.000000,0.321804)}
Sat[ 1 0 0] ( 20 1 16 )
{(0.023936,0.000000)(0.000000,0.284111)(0.000000,0.019284)}

```

Sat[ 1 1 1 ] ( 11 7 4 )  
 {(0.496300,0.000000)(0.642241,0.000000)(0.568275,0.000000)}  
 Sat[ 1 0 0 ] ( 7 6 15 )  
 {(0.768045,0.000000)(0.000000,0.664889)(0.000000,0.653026)}  
 5 Sat[ 0 0 1 ] ( 10 12 20 )  
 {(0.000000,0.275834)(0.000000,0.149117)(0.155344,0.000000)}  
 Sat[ 1 0 1 ] ( 15 4 11 )  
 {(0.380341,0.000000)(0.000000,0.285890)(0.175881,0.000000)}  
 Sat[ 1 0 1 ] {0->1} ( 4 6 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 10 Sat[ 0 1 0 ] ( 4 3 12 )  
 {(0.000000,0.612449)(0.437691,0.000000)(0.000000,0.560895)}  
 Sat[ 1 0 0 ] ( 2 7 16 )  
 {(0.637148,0.000000)(0.000000,0.663803)(0.000000,0.652624)}  
 Sat[ 0 0 1 ] ( 3 17 4 )  
 15 {(0.000000,0.067551)(0.000000,0.057645)(0.012158,0.000000)}  
 Sat[ 0 0 0 ] ( 5 19 15 )  
 {(0.000000,0.239749)(0.000000,0.581909)(0.000000,0.232006)}  
 Sat[ 1 1 0 ] ( 6 13 7 )  
 {(0.015892,0.000000)(0.135561,0.000000)(0.000000,0.006813)}  
 20 Sat[ 0 0 0 ] ( 4 20 7 )  
 {(0.000000,0.275172)(0.000000,0.296940)(0.000000,0.213486)}  
 Sat[ 1 0 0 ] ( 6 17 16 )  
 {(0.078121,0.000000)(0.000000,0.151233)(0.000000,0.033119)}  
 Sat[ 1 0 1 ] ( 5 15 13 )  
 25 {(0.021693,0.000000)(0.000000,0.007451)(0.181870,0.000000)}  
 Sat[ 1 1 0 ] ( 13 4 15 )  
 {(0.416937,0.000000)(0.030213,0.000000)(0.000000,0.023580)}  
 Sat[ 0 1 1 ] {2->1} ( 12 5 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 1 0 0 ] ( 13 11 2 )  
 30 {(0.060187,0.000000)(0.000000,0.007465)(0.000000,0.005471)}  
 Sat[ 1 0 0 ] ( 7 10 20 )  
 {(0.102205,0.000000)(0.000000,0.170784)(0.000000,0.115352)}  
 Sat[ 1 0 1 ] {0->0} ( 1 17 ) {(0.000000,0.746133)(0.105904,0.000000)}  
 Sat[ 1 1 0 ] ( 17 16 1 )  
 35 {(0.012507,0.000000)(0.027634,0.000000)(0.000000,0.239119)}  
 Sat[ 1 1 0 ] ( 16 20 8 )  
 {(0.597077,0.000000)(0.503189,0.000000)(0.000000,0.348580)}  
 Sat[ 1 0 1 ] {0->1} ( 1 5 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 0 1 1 ] ( 5 13 4 )  
 40 {(0.000000,0.022894)(0.399305,0.000000)(0.028137,0.000000)}  
 Sat[ 1 1 0 ] ( 6 17 14 )  
 {(0.402337,0.000000)(0.181212,0.000000)(0.000000,0.261833)}



Sat[ 1 0 1] ( 5 10 20 )  
 {(0.124613,0.000000)(0.000000,0.133018)(0.068973,0.000000)}  
 Sat[ 1 0 0] ( 4 5 20 )  
 {(0.437761,0.000000)(0.000000,0.386541)(0.000000,0.548864)}  
 5 Sat[ 1 1 0] ( 11 12 2 )  
 {(0.184874,0.000000)(0.306973,0.000000)(0.000000,0.374085)}  
 Sat[ 0 1 0] ( 7 6 17 )  
 {(0.000000,0.032756)(0.073835,0.000000)(0.000000,0.143544)}  
 Sat[ 1 1 0] ( 15 1 19 )  
 10 {(0.188221,0.000000)(0.062489,0.000000)(0.000000,0.277792)}  
 Sat[ 0 0 0] ( 11 19 10 )  
 {(0.000000,0.038607)(0.000000,0.050502)(0.000000,0.035454)}  
 Sat[ 0 1 1] ( 3 8 7 )  
 {(0.000000,0.031347)(0.040799,0.000000)(0.007444,0.000000)}  
 15 Sat[ 1 1 0] ( 1 6 19 )  
 {(0.055437,0.000000)(0.183120,0.000000)(0.000000,0.252988)}  
 Sat[ 1 1 1] ( 6 14 3 )  
 {(0.346177,0.000000)(0.269924,0.000000)(0.134179,0.000000)}  
 Sat[ 0 1 0] ( 3 12 5 )  
 20 {(0.000000,0.288422)(0.091463,0.000000)(0.000000,0.052772)}  
 Sat[ 1 0 0] ( 7 11 14 )  
 {(0.120991,0.000000)(0.000000,0.213897)(0.000000,0.111660)}  
 Sat[ 1 1 1]{1->1} ( 4 7 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 0 0 1] ( 14 11 19 )  
 25 {(0.000000,0.280868)(0.000000,0.458148)(0.174944,0.000000)}  
 Sat[ 0 1 1] ( 15 5 6 )  
 {(0.000000,0.083538)(0.212133,0.000000)(0.217498,0.000000)}  
 Sat[ 1 0 0]{2->0} ( 3 15 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 1 0 0] ( 8 5 4 )  
 30 {(0.294894,0.000000)(0.000000,0.041912)(0.000000,0.070568)}  
 Sat[ 0 0 0] ( 7 5 3 )  
 {(0.000000,0.110589)(0.000000,0.091079)(0.000000,0.421610)}  
 Sat[ 0 1 1] ( 15 7 13 )  
 {(0.000000,0.014637)(0.025470,0.000000)(0.305508,0.000000)}  
 35 Sat[ 0 1 1] ( 16 5 7 )  
 {(0.000000,0.147353)(0.292862,0.000000)(0.197868,0.000000)}  
 Sat[ 1 1 1] ( 8 7 10 )  
 {(0.291961,0.000000)(0.067762,0.000000)(0.042882,0.000000)}  
 Sat[ 1 1 1] ( 6 10 13 )  
 40 {(0.019552,0.000000)(0.007042,0.000000)(0.162252,0.000000)}  
 Sat[ 0 1 1] ( 8 15 10 )  
 {(0.000000,0.519863)(0.787352,0.000000)(0.591134,0.000000)}  
 Sat[ 1 1 1]{2->1}{1->0} ( 17 ) {(0.000000,0.000000)}

Sat[ 1 0 0 ] ( 19 1 16 )  
 {(0.034282,0.000000)(0.000000,0.503172)(0.000000,0.047767)}  
 Sat[ 1 0 1 ] ( 14 5 16 )  
 {(0.300774,0.000000)(0.000000,0.174154)(0.312452,0.000000)}  
 5 Sat[ 1 1 1 ] ( 15 2 14 )  
 {(0.262988,0.000000)(0.128909,0.000000)(0.214798,0.000000)}  
 Sat[ 1 1 1 ] ( 4 19 15 )  
 {(0.416821,0.000000)(0.325803,0.000000)(0.606080,0.000000)}  
 Sat[ 0 1 0 ] {1->1} ( 17 15 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 10 Sat[ 0 1 1 ] {0->0} ( 11 1 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 1 1 0 ] ( 6 20 14 )  
 {(0.252052,0.000000)(0.145224,0.000000)(0.000000,0.150791)}  
 Sat[ 0 1 1 ] ( 7 5 19 )  
 {(0.000000,0.389937)(0.593086,0.000000)(0.300898,0.000000)}  
 15 Sat[ 0 0 1 ] ( 12 19 16 )  
 {(0.000000,0.063904)(0.000000,0.176741)(0.094864,0.000000)}  
 Sat[ 1 0 0 ] ( 19 6 17 )  
 {(0.192719,0.000000)(0.000000,0.223915)(0.000000,0.636990)}  
 Sat[ 1 1 0 ] ( 13 11 7 )  
 20 {(0.430107,0.000000)(0.024019,0.000000)(0.000000,0.031960)}  
 Sat[ 0 1 0 ] {1->1}{0->0} ( 1 ) {(0.000000,0.000000)}  
 Sat[ 0 0 0 ] ( 17 19 14 )  
 {(0.000000,0.075562)(0.000000,0.055475)(0.000000,0.020071)}  
 Sat[ 1 1 1 ] {2->1}{1->0} ( 17 ) {(0.000000,0.000000)}  
 25 Sat[ 1 0 0 ] {2->1} ( 8 4 ) {(0.432308,0.000000)(0.000000,0.121446)}  
 Sat[ 1 0 0 ] ( 14 16 11 )  
 {(0.157189,0.000000)(0.000000,0.097446)(0.000000,0.233490)}  
 Sat[ 1 0 1 ] ( 15 19 13 )  
 {(0.004052,0.000000)(0.000000,0.006703)(0.041578,0.000000)}  
 30 Sat[ 0 1 1 ] ( 14 7 8 )  
 {(0.000000,0.037571)(0.040997,0.000000)(0.195159,0.000000)}  
 Sat[ 0 0 0 ] ( 5 11 19 )  
 {(0.000000,0.042514)(0.000000,0.128875)(0.000000,0.163853)}  
 Sat[ 0 1 1 ] ( 12 13 17 )  
 35 {(0.000000,0.027778)(0.366115,0.000000)(0.019177,0.000000)}  
 Sat[ 0 0 0 ] ( 3 20 7 )  
 {(0.000000,0.215389)(0.000000,0.067918)(0.000000,0.044737)}  
 Sat[ 0 1 1 ] ( 4 19 12 )  
 {(0.000000,0.487550)(0.314150,0.000000)(0.497571,0.000000)}  
 40 Sat[ 1 0 0 ] ( 12 1 11 )  
 {(0.006683,0.000000)(0.000000,0.081515)(0.000000,0.012257)}  
 Sat[ 1 0 1 ] ( 16 10 2 )  
 {(0.183783,0.000000)(0.000000,0.241698)(0.103407,0.000000)}

```

Sat[ 1 1 0]{2->0} ( 13 1 ) {(0.000000,0.000000)(0.000000,0.000000)}
Sat[ 1 0 0] ( 6 10 11 )
{(0.052148,0.000000)(0.000000,0.054320)(0.000000,0.059038)}
Sat[ 1 1 1] ( 6 2 16 )
5 {(0.243732,0.000000)(0.108540,0.000000)(0.192050,0.000000)}
Sat[ 0 1 1] ( 10 5 8 )
{(0.000000,0.019155)(0.017797,0.000000)(0.057690,0.000000)}
Sat[ 0 0 0] ( 6 16 3 )
{(0.000000,0.097962)(0.000000,0.112676)(0.000000,0.438914)}
10 Sat[ 0 1 1]{0->0} ( 3 1 ) {(0.000000,0.000000)(0.000000,0.000000)}
Sat[ 1 1 1] ( 17 14 8 )
{(0.034349,0.000000)(0.070247,0.000000)(0.261509,0.000000)}
Sat[ 0 0 0] ( 12 15 11 )
{(0.000000,0.241982)(0.000000,0.178932)(0.000000,0.431178)}
15 Sat[ 0 1 1]{2->1} ( 8 3 ) {(0.000000,0.000000)(0.000000,0.000000)}
Sat[ 0 0 1] ( 15 2 19 )
{(0.000000,0.627328)(0.000000,0.810732)(0.594871,0.000000)}
Sat[ 0 1 1] ( 7 19 5 )
{(0.000000,0.389937)(0.300910,0.000000)(0.593133,0.000000)}
20 Sat[ 1 0 1] ( 4 11 10 )
{(0.232659,0.000000)(0.000000,0.449837)(0.203145,0.000000)}
Sat[ 1 0 1] ( 17 12 8 )
{(0.058200,0.000000)(0.000000,0.082804)(0.380902,0.000000)}
Sat[ 0 1 1] ( 4 8 6 )
25 {(0.000000,0.019563)(0.099053,0.000000)(0.032499,0.000000)}
Sat[ 1 1 0] ( 6 12 3 )
{(0.040967,0.000000)(0.025745,0.000000)(0.000000,0.096164)}
Sat[ 1 0 0] ( 16 7 17 )
{(0.078385,0.000000)(0.000000,0.046699)(0.000000,0.195157)}
30 Sat[ 0 1 1] ( 15 13 20 )
{(0.000000,0.017840)(0.349767,0.000000)(0.027165,0.000000)}
Sat[ 1 0 1]{0->1} ( 11 16 ) {(0.000000,0.000000)(0.000000,0.000000)}
Sat[ 1 1 1] ( 8 2 17 )
{(0.485388,0.000000)(0.098188,0.000000)(0.086546,0.000000)}
35 Sat[ 0 1 0] ( 13 11 19 )
{(0.000000,0.463530)(0.521118,0.000000)(0.000000,0.838488)}
Sat[ 0 0 1]{2->0} ( 4 19 ) {(0.000000,0.263102)(0.000000,0.475908)}
Sat[ 1 0 0]{1->0} ( 15 13 ) {(0.000000,0.000000)(0.000000,0.000000)}

40 New local fields:
[1] {0.029192,0.061261,0.909547 }
[2] {0.285366,0.084196,0.630438 }
[3] {0.095620,0.090723,0.813657 }

```

```

[4] {0.400786,0.036232,0.562981 }
[5] {0.695668,0.058515,0.245817 }
[6] {0.688847,0.072996,0.238157 }
[7] {0.560639,0.026680,0.412681 }
5 [8] {0.894134,0.033112,0.072754 }
[10] {0.228103,0.102308,0.669589 }
[11] {0.208773,0.039219,0.752009 }
[12] {0.495815,0.119194,0.384991 }
[13] {0.947101,0.028379,0.024520 }
10 [14] {0.451977,0.206976,0.341047 }
[15] {0.726219,0.012323,0.261458 }
[16] {0.589204,0.087985,0.322810 }
[17] {0.113280,0.162369,0.724351 }
[19] {0.157612,0.009863,0.832525 }
15 [20] {0.360294,0.167304,0.472403 }

```

### STEP 3:

fixing var 13 to 1 (local field: [13] {0.947101,0.028379,0.024520 })

20

Clauses in var 13 appears:

```

5   Sat[ 0 1 0] ( 17 13 4 )
17  Sat[ 1 1 0] ( 6 13 7 )
20  Sat[ 1 0 1] ( 5 15 13 )
25 21  Sat[ 1 1 0] ( 13 4 15 )
23  Sat[ 1 0 0] ( 13 11 2 )
29  Sat[ 0 1 1] ( 5 13 4 )
48  Sat[ 0 1 1] ( 15 7 13 )
51  Sat[ 1 1 1] ( 6 10 13 )
30 64  Sat[ 1 1 0] ( 13 11 7 )
70  Sat[ 1 0 1] ( 15 19 13 )
73  Sat[ 0 1 1] ( 12 13 17 )
78  Sat[ 1 1 0]{2->0} ( 13 1 )
94  Sat[ 0 1 1] ( 15 13 20 )
35 97  Sat[ 0 1 0] ( 13 11 19 )
99  Sat[ 1 0 0]{1->0} ( 15 13 )

```

The clauses in which s\_13=1 are satisfied and eliminated.

40

New surveys obtained by convergence of SP:

```

Sat[ 1 1 1]{2->1} ( 14 20 ) {(0.000000,0.000000)(0.000000,0.000000)}
Sat[ 1 1 1] ( 12 15 1 )
{(0.355380,0.000000)(0.449531,0.000000)(0.184533,0.000000)}

```

Sat[ 0 1 0] ( 11 4 7 )  
 {(0.000000,0.361297)(0.174701,0.000000)(0.000000,0.176573)}  
 Sat[ 1 1 0] ( 6 8 15 )  
 {(0.061734,0.000000)(0.195529,0.000000)(0.000000,0.022120)}  
 5 Sat[ 0 0 0] ( 10 5 15 )  
 {(0.000000,0.639303)(0.000000,0.357969)(0.000000,0.349251)}  
 Sat[ 0 1 0]{1->1} ( 17 4 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 1 1 0] ( 1 16 3 )  
 {(0.051623,0.000000)(0.133684,0.000000)(0.000000,0.326852)}  
 10 Sat[ 1 0 0] ( 20 1 16 )  
 {(0.021133,0.000000)(0.000000,0.287749)(0.000000,0.016957)}  
 Sat[ 1 1 1] ( 11 7 4 )  
 {(0.505435,0.000000)(0.645483,0.000000)(0.579957,0.000000)}  
 Sat[ 1 0 0] ( 7 6 15 )  
 15 {(0.770388,0.000000)(0.000000,0.677754)(0.000000,0.658903)}  
 Sat[ 0 0 1] ( 10 12 20 )  
 {(0.000000,0.281474)(0.000000,0.147261)(0.154945,0.000000)}  
 Sat[ 1 0 1] ( 15 4 11 )  
 {(0.382261,0.000000)(0.000000,0.279412)(0.172532,0.000000)}  
 20 Sat[ 1 0 1]{0->1} ( 4 6 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 0 1 0] ( 4 3 12 )  
 {(0.000000,0.620531)(0.450738,0.000000)(0.000000,0.567654)}  
 Sat[ 1 0 0] ( 2 7 16 )  
 {(0.650579,0.000000)(0.000000,0.687504)(0.000000,0.670609)}  
 25 Sat[ 0 0 1] ( 3 17 4 )  
 {(0.000000,0.064141)(0.000000,0.061092)(0.012465,0.000000)}  
 Sat[ 0 0 0] ( 5 19 15 )  
 {(0.000000,0.211970)(0.000000,0.585496)(0.000000,0.205665)}  
 Sat[ 1 1 0]{1->1} ( 6 7 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 30 Sat[ 0 0 0] ( 4 20 7 )  
 {(0.000000,0.268230)(0.000000,0.293314)(0.000000,0.212447)}  
 Sat[ 1 0 0] ( 6 17 16 )  
 {(0.076188,0.000000)(0.000000,0.161420)(0.000000,0.033825)}  
 Sat[ 1 0 1]{2->1} ( 5 15 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 35 Sat[ 1 1 0]{0->1} ( 4 15 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 0 1 1]{2->1} ( 12 5 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 1 0 0]{0->1} ( 11 2 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 1 0 0] ( 7 10 20 )  
 {(0.099303,0.000000)(0.000000,0.173288)(0.000000,0.115288)}  
 40 Sat[ 1 0 1]{0->0} ( 1 17 ) {(0.000000,0.747903)(0.093655,0.000000)}  
 Sat[ 1 1 0] ( 17 16 1 )  
 {(0.010891,0.000000)(0.024237,0.000000)(0.000000,0.240171)}

Sat[ 1 1 0] ( 16 20 8 )  
 {(0.607923,0.000000)(0.513231,0.000000)(0.000000,0.357083)}  
 Sat[ 1 0 1]{0->1} ( 1 5 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 0 1 1]{1->1} ( 5 4 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 5 Sat[ 1 1 0] ( 6 17 14 )  
 {(0.412097,0.000000)(0.195347,0.000000)(0.000000,0.280806)}  
 Sat[ 1 0 1] ( 5 10 20 )  
 {(0.121304,0.000000)(0.000000,0.126910)(0.063697,0.000000)}  
 Sat[ 1 0 0] ( 4 5 20 )  
 10 {(0.441410,0.000000)(0.000000,0.383978)(0.000000,0.551924)}  
 Sat[ 1 1 0] ( 11 12 2 )  
 {(0.170555,0.000000)(0.291769,0.000000)(0.000000,0.361499)}  
 Sat[ 0 1 0] ( 7 6 17 )  
 {(0.000000,0.033214)(0.069685,0.000000)(0.000000,0.148817)}  
 15 Sat[ 1 1 0] ( 15 1 19 )  
 {(0.160739,0.000000)(0.050397,0.000000)(0.000000,0.265326)}  
 Sat[ 0 0 0] ( 11 19 10 )  
 {(0.000000,0.032004)(0.000000,0.048753)(0.000000,0.030088)}  
 Sat[ 0 1 1] ( 3 8 7 )  
 20 {(0.000000,0.030286)(0.044825,0.000000)(0.007529,0.000000)}  
 Sat[ 1 1 0] ( 1 6 19 )  
 {(0.050050,0.000000)(0.160486,0.000000)(0.000000,0.263898)}  
 Sat[ 1 1 1] ( 6 14 3 )  
 {(0.358907,0.000000)(0.286739,0.000000)(0.149008,0.000000)}  
 25 Sat[ 0 1 0] ( 3 12 5 )  
 {(0.000000,0.288065)(0.099510,0.000000)(0.000000,0.055517)}  
 Sat[ 1 0 0] ( 7 11 14 )  
 {(0.122175,0.000000)(0.000000,0.219986)(0.000000,0.114927)}  
 Sat[ 1 1 1]{1->1} ( 4 7 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 30 Sat[ 0 0 1] ( 14 11 19 )  
 {(0.000000,0.294213)(0.000000,0.475214)(0.180622,0.000000)}  
 Sat[ 0 1 1] ( 15 5 6 )  
 {(0.000000,0.084966)(0.225528,0.000000)(0.212670,0.000000)}  
 Sat[ 1 0 0]{2->0} ( 3 15 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 35 Sat[ 1 0 0] ( 8 5 4 )  
 {(0.301968,0.000000)(0.000000,0.040145)(0.000000,0.068020)}  
 Sat[ 0 0 0] ( 7 5 3 )  
 {(0.000000,0.120442)(0.000000,0.096353)(0.000000,0.423302)}  
 Sat[ 0 1 1]{2->1} ( 15 7 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 40 Sat[ 0 1 1] ( 16 5 7 )  
 {(0.000000,0.144659)(0.300488,0.000000)(0.192140,0.000000)}  
 Sat[ 1 1 1] ( 8 7 10 )  
 {(0.302664,0.000000)(0.065552,0.000000)(0.041827,0.000000)}

Sat[ 1 1 1]{2->1} ( 6 10 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 0 1 1] ( 8 15 10 )  
 {(0.000000,0.529940)(0.800258,0.000000)(0.599457,0.000000)}  
 Sat[ 1 1 1]{2->1}{1->0} ( 17 ) {(0.000000,0.000000)}  
 5 Sat[ 1 0 0] ( 19 1 16 )  
 {(0.031264,0.000000)(0.000000,0.521411)(0.000000,0.044443)}  
 Sat[ 1 0 1] ( 14 5 16 )  
 {(0.310436,0.000000)(0.000000,0.182950)(0.328791,0.000000)}  
 Sat[ 1 1 1] ( 15 2 14 )  
 10 {(0.279238,0.000000)(0.131351,0.000000)(0.218579,0.000000)}  
 Sat[ 1 1 1] ( 4 19 15 )  
 {(0.422045,0.000000)(0.322060,0.000000)(0.615974,0.000000)}  
 Sat[ 0 1 0]{1->1} ( 17 15 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 0 1 1]{0->0} ( 11 1 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 15 Sat[ 1 1 0] ( 6 20 14 )  
 {(0.257207,0.000000)(0.155399,0.000000)(0.000000,0.161711)}  
 Sat[ 0 1 1] ( 7 5 19 )  
 {(0.000000,0.384182)(0.594575,0.000000)(0.286047,0.000000)}  
 Sat[ 0 0 1] ( 12 19 16 )  
 20 {(0.000000,0.054423)(0.000000,0.177443)(0.082455,0.000000)}  
 Sat[ 1 0 0] ( 19 6 17 )  
 {(0.183137,0.000000)(0.000000,0.221719)(0.000000,0.639829)}  
 Sat[ 1 1 0]{0->1} ( 11 7 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 0 1 0]{1->1}{0->0} ( 1 ) {(0.000000,0.000000)}  
 25 Sat[ 0 0 0] ( 17 19 14 )  
 {(0.000000,0.064483)(0.000000,0.052476)(0.000000,0.016185)}  
 Sat[ 1 1 1]{2->1}{1->0} ( 17 ) {(0.000000,0.000000)}  
 Sat[ 1 0 0]{2->1} ( 8 4 ) {(0.434799,0.000000)(0.000000,0.114874)}  
 Sat[ 1 0 0] ( 14 16 11 )  
 30 {(0.160258,0.000000)(0.000000,0.101376)(0.000000,0.243327)}  
 Sat[ 1 0 1]{2->1} ( 15 19 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 0 1 1] ( 14 7 8 )  
 {(0.000000,0.036328)(0.038840,0.000000)(0.200013,0.000000)}  
 Sat[ 0 0 0] ( 5 11 19 )  
 35 {(0.000000,0.035897)(0.000000,0.112016)(0.000000,0.163549)}  
 Sat[ 0 1 1]{1->1} ( 12 17 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 0 0 0] ( 3 20 7 )  
 {(0.000000,0.210829)(0.000000,0.071229)(0.000000,0.047474)}  
 Sat[ 0 1 1] ( 4 19 12 )  
 40 {(0.000000,0.498642)(0.319755,0.000000)(0.517272,0.000000)}  
 Sat[ 1 0 0] ( 12 1 11 )  
 {(0.005790,0.000000)(0.000000,0.079385)(0.000000,0.010385)}

```

Sat[ 1 0 1 ] ( 16 10 2 )
{(0.186062,0.000000)(0.000000,0.249324)(0.101992,0.000000)}
Sat[ 1 1 0 ] {2->0} {0->1} ( 1 ) {(0.000000,0.000000)}
Sat[ 1 0 0 ] ( 6 10 11 )
5 {(0.051048,0.000000)(0.000000,0.057551)(0.000000,0.061107)}
Sat[ 1 1 1 ] ( 6 2 16 )
{(0.255844,0.000000)(0.117753,0.000000)(0.211756,0.000000)}
Sat[ 0 1 1 ] ( 10 5 8 )
{(0.000000,0.017054)(0.016210,0.000000)(0.053443,0.000000)}
10 Sat[ 0 0 0 ] ( 6 16 3 )
{(0.000000,0.105389)(0.000000,0.117861)(0.000000,0.436228)}
Sat[ 0 1 1 ] {0->0} ( 3 1 ) {(0.000000,0.000000)(0.000000,0.000000)}
Sat[ 1 1 1 ] ( 17 14 8 )
{(0.033585,0.000000)(0.067207,0.000000)(0.270415,0.000000)}
15 Sat[ 0 0 0 ] ( 12 15 11 )
{(0.000000,0.248591)(0.000000,0.185189)(0.000000,0.444404)}
Sat[ 0 1 1 ] {2->1} ( 8 3 ) {(0.000000,0.000000)(0.000000,0.000000)}
Sat[ 0 0 1 ] ( 15 2 19 )
{(0.000000,0.655185)(0.000000,0.836064)(0.619490,0.000000)}
20 Sat[ 0 1 1 ] ( 7 19 5 )
{(0.000000,0.384233)(0.286092,0.000000)(0.594610,0.000000)}
Sat[ 1 0 1 ] ( 4 11 10 )
{(0.236178,0.000000)(0.000000,0.452421)(0.202379,0.000000)}
Sat[ 1 0 1 ] ( 17 12 8 )
25 {(0.056266,0.000000)(0.000000,0.079308)(0.388709,0.000000)}
Sat[ 0 1 1 ] ( 4 8 6 )
{(0.000000,0.019598)(0.105934,0.000000)(0.031077,0.000000)}
Sat[ 1 1 0 ] ( 6 12 3 )
{(0.043207,0.000000)(0.029429,0.000000)(0.000000,0.099927)}
30 Sat[ 1 0 0 ] ( 16 7 17 )
{(0.073219,0.000000)(0.000000,0.044320)(0.000000,0.190939)}
Sat[ 0 1 1 ] {1->1} ( 15 20 ) {(0.000000,0.000000)(0.000000,0.000000)}
Sat[ 1 0 1 ] {0->1} ( 11 16 ) {(0.000000,0.000000)(0.000000,0.000000)}
Sat[ 1 1 1 ] ( 8 2 17 )
35 {(0.502282,0.000000)(0.095878,0.000000)(0.086441,0.000000)}
Sat[ 0 1 0 ] {0->1} ( 11 19 ) {(0.545712,0.000000)(0.000000,0.870498)}
Sat[ 0 0 1 ] {2->0} ( 4 19 ) {(0.000000,0.226268)(0.000000,0.468078)}
Sat[ 1 0 0 ] {1->0} {1->1} ( 15 ) {(0.000000,0.000000)}

40 New local fields:
[1] {0.025391,0.058585,0.916023 }
[2] {0.273662,0.076028,0.650310 }
[3] {0.102690,0.090125,0.807184 }

```



[4] {0.405063,0.037348,0.557589 }  
 [5] {0.706907,0.058948,0.234145 }  
 [6] {0.674525,0.073026,0.252449 }  
 [7] {0.550353,0.026747,0.422900 }  
 5 [8] {0.902058,0.029599,0.068343 }  
 [10] {0.222395,0.098114,0.679492 }  
 [11] {0.208643,0.038039,0.753318 }  
 [12] {0.504519,0.119498,0.375983 }  
 [14] {0.453246,0.195221,0.351533 }  
 10 [15] {0.734397,0.011773,0.253830 }  
 [16] {0.594717,0.082151,0.323133 }  
 [17] {0.108160,0.162937,0.728903 }  
 [19] {0.134607,0.008287,0.857106 }  
 [20] {0.357714,0.167116,0.475171 }

15

STEP 4:

fixing var 1 to 0 (local field: [1] {0.025391,0.058585,0.916023 })

20 Clauses in var 1 appears:

1 Sat[ 1 1 1] ( 12 15 1 )  
 6 Sat[ 1 1 0] ( 1 16 3 )  
 7 Sat[ 1 0 0] ( 20 1 16 )  
 25 Sat[ 1 0 1]{0->0} ( 1 17 )  
 26 Sat[ 1 1 0] ( 17 16 1 )  
 28 Sat[ 1 0 1]{0->1} ( 1 5 )  
 35 Sat[ 1 1 0] ( 15 1 19 )  
 38 Sat[ 1 1 0] ( 1 6 19 )  
 54 Sat[ 1 0 0] ( 19 1 16 )  
 30 59 Sat[ 0 1 1]{0->0} ( 11 1 )  
 65 Sat[ 0 1 0]{1->1}{0->0} ( 1 )  
 76 Sat[ 1 0 0] ( 12 1 11 )  
 78 Sat[ 1 1 0]{2->0}{0->1} ( 1 )  
 83 Sat[ 0 1 1]{0->0} ( 3 1 )

35

The clauses in which  $s_1=0$  are satisfied and eliminated.

New surveys obtained by convergence of SP:

Sat[ 1 1 1]{2->1} ( 14 20 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 40 Sat[ 1 1 1]{2->0} ( 12 15 ) {(0.386625,0.000000)(0.488038,0.000000)}  
 Sat[ 0 1 0] ( 11 4 7 )  
 {(0.000000,0.359751)(0.166362,0.000000)(0.000000,0.167734)}

Sat[ 1 1 0] ( 6 8 15 )  
 {(0.060137,0.000000)(0.198927,0.000000)(0.000000,0.021285)}  
 Sat[ 0 0 0] ( 10 5 15 )  
 {(0.000000,0.652900)(0.000000,0.359377)(0.000000,0.350204)}  
 5 Sat[ 0 1 0]{1->1} ( 17 4 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 1 1 0]{0->0} ( 16 3 ) {(0.153252,0.000000)(0.000000,0.358711)}  
 Sat[ 1 0 0]{1->0} ( 20 16 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 1 1 1] ( 11 7 4 )  
 {(0.513477,0.000000)(0.656173,0.000000)(0.590788,0.000000)}  
 10 Sat[ 1 0 0] ( 7 6 15 )  
 {(0.781203,0.000000)(0.000000,0.691411)(0.000000,0.669015)}  
 Sat[ 0 0 1] ( 10 12 20 )  
 {(0.000000,0.289614)(0.000000,0.144444)(0.153427,0.000000)}  
 Sat[ 1 0 1] ( 15 4 11 )  
 15 {(0.383816,0.000000)(0.000000,0.273133)(0.166077,0.000000)}  
 Sat[ 1 0 1]{0->1} ( 4 6 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 0 1 0] ( 4 3 12 )  
 {(0.000000,0.637277)(0.467443,0.000000)(0.000000,0.579445)}  
 Sat[ 1 0 0] ( 2 7 16 )  
 20 {(0.674167,0.000000)(0.000000,0.713627)(0.000000,0.697479)}  
 Sat[ 0 0 1] ( 3 17 4 )  
 {(0.000000,0.050924)(0.000000,0.061071)(0.009902,0.000000)}  
 Sat[ 0 0 0] ( 5 19 15 )  
 {(0.000000,0.202773)(0.000000,0.596459)(0.000000,0.196375)}  
 25 Sat[ 1 1 0]{1->1} ( 6 7 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 0 0 0] ( 4 20 7 )  
 {(0.000000,0.264569)(0.000000,0.292616)(0.000000,0.208495)}  
 Sat[ 1 0 0] ( 6 17 16 )  
 {(0.060683,0.000000)(0.000000,0.160259)(0.000000,0.026684)}  
 30 Sat[ 1 0 1]{2->1} ( 5 15 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 1 1 0]{0->1} ( 4 15 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 0 1 1]{2->1} ( 12 5 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 1 0 0]{0->1} ( 11 2 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 1 0 0] ( 7 10 20 )  
 35 {(0.093323,0.000000)(0.000000,0.169005)(0.000000,0.109915)}  
 Sat[ 1 0 1]{0->0}{0->0} ( 17 ) {(0.000000,0.000000)}  
 Sat[ 1 1 0]{2->0} ( 17 16 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 1 1 0] ( 16 20 8 )  
 {(0.618100,0.000000)(0.519794,0.000000)(0.000000,0.364446)}  
 40 Sat[ 1 0 1]{0->1}{0->0} ( 5 ) {(0.000000,0.000000)}  
 Sat[ 0 1 1]{1->1} ( 5 4 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 1 1 0] ( 6 17 14 )  
 {(0.420789,0.000000)(0.198851,0.000000)(0.000000,0.288972)}

Sat[ 1 0 1] ( 5 10 20 )  
 {(0.117227,0.000000)(0.000000,0.122991)(0.058684,0.000000)}  
 Sat[ 1 0 0] ( 4 5 20 )  
 {(0.442460,0.000000)(0.000000,0.382030)(0.000000,0.557264)}  
 5 Sat[ 1 1 0] ( 11 12 2 )  
 {(0.162516,0.000000)(0.286437,0.000000)(0.000000,0.357518)}  
 Sat[ 0 1 0] ( 7 6 17 )  
 {(0.000000,0.026226)(0.055458,0.000000)(0.000000,0.147811)}  
 Sat[ 1 1 0]{1->0} ( 15 19 ) {(0.163005,0.000000)(0.000000,0.278272)}  
 10 Sat[ 0 0 0] ( 11 19 10 )  
 {(0.000000,0.027961)(0.000000,0.044211)(0.000000,0.025989)}  
 Sat[ 0 1 1] ( 3 8 7 )  
 {(0.000000,0.028902)(0.045259,0.000000)(0.007280,0.000000)}  
 Sat[ 1 1 0]{0->0} ( 6 19 ) {(0.165077,0.000000)(0.000000,0.289054)}  
 15 Sat[ 1 1 1] ( 6 14 3 )  
 {(0.358460,0.000000)(0.288383,0.000000)(0.148848,0.000000)}  
 Sat[ 0 1 0] ( 3 12 5 )  
 {(0.000000,0.286968)(0.101883,0.000000)(0.000000,0.055208)}  
 Sat[ 1 0 0] ( 7 11 14 )  
 20 {(0.115650,0.000000)(0.000000,0.217873)(0.000000,0.108604)}  
 Sat[ 1 1 1]{1->1} ( 4 7 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 0 0 1] ( 14 11 19 )  
 {(0.000000,0.285289)(0.000000,0.477135)(0.172300,0.000000)}  
 Sat[ 0 1 1] ( 15 5 6 )  
 25 {(0.000000,0.082311)(0.228645,0.000000)(0.208791,0.000000)}  
 Sat[ 1 0 0]{2->0} ( 3 15 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 1 0 0] ( 8 5 4 )  
 {(0.305004,0.000000)(0.000000,0.038471)(0.000000,0.066156)}  
 Sat[ 0 0 0] ( 7 5 3 )  
 30 {(0.000000,0.124948)(0.000000,0.099209)(0.000000,0.431339)}  
 Sat[ 0 1 1]{2->1} ( 15 7 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 0 1 1] ( 16 5 7 )  
 {(0.000000,0.138821)(0.299102,0.000000)(0.185711,0.000000)}  
 Sat[ 1 1 1] ( 8 7 10 )  
 35 {(0.306511,0.000000)(0.063999,0.000000)(0.040115,0.000000)}  
 Sat[ 1 1 1]{2->1} ( 6 10 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 0 1 1] ( 8 15 10 )  
 {(0.000000,0.533091)(0.809342,0.000000)(0.599952,0.000000)}  
 Sat[ 1 1 1]{2->1}{1->0} ( 17 ) {(0.000000,0.000000)}  
 40 Sat[ 1 0 0]{1->0} ( 19 16 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 1 0 1] ( 14 5 16 )  
 {(0.313216,0.000000)(0.000000,0.181999)(0.331489,0.000000)}

Sat[ 1 1 1] ( 15 2 14 )  
 {(0.282357,0.000000)(0.126071,0.000000)(0.215510,0.000000)}  
 Sat[ 1 1 1] ( 4 19 15 )  
 {(0.415705,0.000000)(0.313643,0.000000)(0.619355,0.000000)}  
 5 Sat[ 0 1 0]{1->1} ( 17 15 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 0 1 1]{0->0}{1->0} ( 11 ) {(0.000000,0.000000)}  
 Sat[ 1 1 0] ( 6 20 14 )  
 {(0.260436,0.000000)(0.156633,0.000000)(0.000000,0.164576)}  
 Sat[ 0 1 1] ( 7 5 19 )  
 10 {(0.000000,0.380424)(0.600595,0.000000)(0.280836,0.000000)}  
 Sat[ 0 0 1] ( 12 19 16 )  
 {(0.000000,0.049598)(0.000000,0.179282)(0.077287,0.000000)}  
 Sat[ 1 0 0] ( 19 6 17 )  
 {(0.145598,0.000000)(0.000000,0.180389)(0.000000,0.633107)}  
 15 Sat[ 1 1 0]{0->1} ( 11 7 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 0 1 0]{1->1}{0->0}{0->0} ( ) {}  
 Sat[ 0 0 0] ( 17 19 14 )  
 {(0.000000,0.058302)(0.000000,0.041320)(0.000000,0.011588)}  
 Sat[ 1 1 1]{2->1}{1->0} ( 17 ) {(0.000000,0.000000)}  
 20 Sat[ 1 0 0]{2->1} ( 8 4 ) {(0.432812,0.000000)(0.000000,0.109664)}  
 Sat[ 1 0 0] ( 14 16 11 )  
 {(0.152528,0.000000)(0.000000,0.095278)(0.000000,0.240920)}  
 Sat[ 1 0 1]{2->1} ( 15 19 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 0 1 1] ( 14 7 8 )  
 25 {(0.000000,0.034612)(0.037056,0.000000)(0.199183,0.000000)}  
 Sat[ 0 0 0] ( 5 11 19 )  
 {(0.000000,0.030845)(0.000000,0.103178)(0.000000,0.156120)}  
 Sat[ 0 1 1]{1->1} ( 12 17 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 0 0 0] ( 3 20 7 )  
 30 {(0.000000,0.208326)(0.000000,0.072176)(0.000000,0.047199)}  
 Sat[ 0 1 1] ( 4 19 12 )  
 {(0.000000,0.498452)(0.316380,0.000000)(0.521438,0.000000)}  
 Sat[ 1 0 0]{1->0} ( 12 11 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 1 0 1] ( 16 10 2 )  
 35 {(0.183395,0.000000)(0.000000,0.252541)(0.097858,0.000000)}  
 Sat[ 1 1 0]{2->0}{0->1}{0->0} ( ) {}  
 Sat[ 1 0 0] ( 6 10 11 )  
 {(0.046416,0.000000)(0.000000,0.054591)(0.000000,0.058603)}  
 Sat[ 1 1 1] ( 6 2 16 )  
 40 {(0.261460,0.000000)(0.118815,0.000000)(0.218225,0.000000)}  
 Sat[ 0 1 1] ( 10 5 8 )  
 {(0.000000,0.015623)(0.014806,0.000000)(0.049360,0.000000)}

Sat[ 0 0 0] ( 6 16 3 )  
 {(0.000000,0.107272)(0.000000,0.119209)(0.000000,0.437323)}  
 Sat[ 0 1 1]{0->0}{1->0} ( 3 ) {(0.000000,0.000000)}  
 Sat[ 1 1 1] ( 17 14 8 )  
 5 {(0.032003,0.000000)(0.065585,0.000000)(0.273030,0.000000)}  
 Sat[ 0 0 0] ( 12 15 11 )  
 {(0.000000,0.244816)(0.000000,0.183204)(0.000000,0.457646)}  
 Sat[ 0 1 1]{2->1} ( 8 3 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 0 0 1] ( 15 2 19 )  
 10 {(0.000000,0.677766)(0.000000,0.854883)(0.643518,0.000000)}  
 Sat[ 0 1 1] ( 7 19 5 )  
 {(0.000000,0.380435)(0.280841,0.000000)(0.600589,0.000000)}  
 Sat[ 1 0 1] ( 4 11 10 )  
 {(0.229594,0.000000)(0.000000,0.456268)(0.194053,0.000000)}  
 15 Sat[ 1 0 1] ( 17 12 8 )  
 {(0.056258,0.000000)(0.000000,0.078955)(0.403763,0.000000)}  
 Sat[ 0 1 1] ( 4 8 6 )  
 {(0.000000,0.018788)(0.106038,0.000000)(0.029658,0.000000)}  
 Sat[ 1 1 0] ( 6 12 3 )  
 20 {(0.042895,0.000000)(0.029864,0.000000)(0.000000,0.098461)}  
 Sat[ 1 0 0] ( 16 7 17 )  
 {(0.058126,0.000000)(0.000000,0.034657)(0.000000,0.187780)}  
 Sat[ 0 1 1]{1->1} ( 15 20 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 1 0 1]{0->1} ( 11 16 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 25 Sat[ 1 1 1] ( 8 2 17 )  
 {(0.521973,0.000000)(0.096791,0.000000)(0.087699,0.000000)}  
 Sat[ 0 1 0]{0->1} ( 11 19 ) {(0.520575,0.000000)(0.000000,0.870550)}  
 Sat[ 0 0 1]{2->0} ( 4 19 ) {(0.000000,0.206960)(0.000000,0.461411)}  
 Sat[ 1 0 0]{1->0}{1->1} ( 15 ) {(0.000000,0.000000)}

30

New local fields:

[2] {0.266205,0.068416,0.665379 }  
 [3] {0.104007,0.086233,0.809760 }  
 [4] {0.404518,0.037466,0.558015 }  
 35 [5] {0.716304,0.058086,0.225609 }  
 [6] {0.672629,0.073917,0.253453 }  
 [7] {0.552504,0.025398,0.422098 }  
 [8] {0.907136,0.027557,0.065307 }  
 [10] {0.213624,0.095744,0.690632 }  
 40 [11] {0.198181,0.038567,0.763253 }  
 [12] {0.515847,0.115158,0.368995 }  
 [14] {0.453033,0.197513,0.349454 }  
 [15] {0.745566,0.010396,0.244039 }

```

[16] {0.597204,0.081391,0.321405}
[17] {0.085791,0.172379,0.741830}
[19] {0.123263,0.008032,0.868705}
[20] {0.351814,0.167648,0.480538}

```

5

STEP 5:

fixing var 8 to 1 (local field: [8] {0.907136,0.027557,0.065307 })

```

10 3    Sat[ 1 1 0] ( 6 8 15 )
    27   Sat[ 1 1 0] ( 16 20 8 )
    37   Sat[ 0 1 1] ( 3 8 7 )
    46   Sat[ 1 0 0] ( 8 5 4 )
    50   Sat[ 1 1 1] ( 8 7 10 )
15 52   Sat[ 0 1 1] ( 8 15 10 )
    68   Sat[ 1 0 0]{2->1} ( 8 4 )
    71   Sat[ 0 1 1] ( 14 7 8 )
    81   Sat[ 0 1 1] ( 10 5 8 )
    84   Sat[ 1 1 1] ( 17 14 8 )
20 86   Sat[ 0 1 1]{2->1} ( 8 3 )
    90   Sat[ 1 0 1] ( 17 12 8 )
    91   Sat[ 0 1 1] ( 4 8 6 )
    96   Sat[ 1 1 1] ( 8 2 17 )

```

25 The clauses in which s\_8=1 are satisfied and eliminated.

New surveys obtained by convergence of SP:

```

Sat[ 1 1 1]{2->1} ( 14 20 ) {(0.000000,0.000000)(0.000000,0.000000)}
Sat[ 1 1 1]{2->0} ( 12 15 ) {(0.348209,0.000000)(0.455161,0.000000)}
30 Sat[ 0 1 0] ( 11 4 7 )
   {(0.000000,0.301119)(0.137543,0.000000)(0.000000,0.140815)}
Sat[ 1 1 0]{1->1} ( 6 15 ) {(0.000000,0.000000)(0.000000,0.000000)}
Sat[ 0 0 0] ( 10 5 15 )
   {(0.000000,0.680969)(0.000000,0.422642)(0.000000,0.402000)}
35 Sat[ 0 1 0]{1->1} ( 17 4 ) {(0.000000,0.000000)(0.000000,0.000000)}
Sat[ 1 1 0]{0->0} ( 16 3 ) {(0.203275,0.000000)(0.000000,0.350577)}
Sat[ 1 0 0]{1->0} ( 20 16 ) {(0.000000,0.000000)(0.000000,0.000000)}
Sat[ 1 1 1] ( 11 7 4 )
   {(0.537865,0.000000)(0.653570,0.000000)(0.632486,0.000000)}
40 Sat[ 1 0 0] ( 7 6 15 )
   {(0.795578,0.000000)(0.000000,0.747570)(0.000000,0.705889)}
Sat[ 0 0 1] ( 10 12 20 )
   {(0.000000,0.289768)(0.000000,0.155148)(0.178932,0.000000)}

```

Sat[ 1 0 1 ] ( 15 4 11 )  
 {(0.413151,0.000000)(0.000000,0.264814)(0.171553,0.000000)}  
 Sat[ 1 0 1 ]{0->1} ( 4 6 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 0 1 0 ] ( 4 3 12 )  
 5 {(0.000000,0.650043)(0.516035,0.000000)(0.000000,0.604094)}  
 Sat[ 1 0 0 ] ( 2 7 16 )  
 {(0.685201,0.000000)(0.000000,0.749471)(0.000000,0.704555)}  
 Sat[ 0 0 1 ] ( 3 17 4 )  
 {(0.000000,0.033537)(0.000000,0.076224)(0.009425,0.000000)}  
 10 Sat[ 0 0 0 ] ( 5 19 15 )  
 {(0.000000,0.183409)(0.000000,0.594667)(0.000000,0.170992)}  
 Sat[ 1 1 0 ]{1->1} ( 6 7 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 0 0 0 ] ( 4 20 7 )  
 {(0.000000,0.276793)(0.000000,0.300375)(0.000000,0.250592)}  
 15 Sat[ 1 0 0 ] ( 6 17 16 )  
 {(0.047162,0.000000)(0.000000,0.202750)(0.000000,0.023455)}  
 Sat[ 1 0 1 ]{2->1} ( 5 15 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 1 1 0 ]{0->1} ( 4 15 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 0 1 1 ]{2->1} ( 12 5 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 20 Sat[ 1 0 0 ]{0->1} ( 11 2 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 1 0 0 ] ( 7 10 20 )  
 {(0.124815,0.000000)(0.000000,0.218332)(0.000000,0.146516)}  
 Sat[ 1 0 1 ]{0->0}{0->0} ( 17 ) {(0.000000,0.000000)}  
 Sat[ 1 1 0 ]{2->0} ( 17 16 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 25 Sat[ 1 1 0 ]{2->1} ( 16 20 ) {(0.646547,0.000000)(0.548902,0.000000)}  
 Sat[ 1 0 1 ]{0->1}{0->0} ( 5 ) {(0.000000,0.000000)}  
 Sat[ 0 1 1 ]{1->1} ( 5 4 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 1 1 0 ] ( 6 17 14 )  
 {(0.425684,0.000000)(0.234124,0.000000)(0.000000,0.345035)}  
 30 Sat[ 1 0 1 ] ( 5 10 20 )  
 {(0.125448,0.000000)(0.000000,0.124743)(0.070741,0.000000)}  
 Sat[ 1 0 0 ] ( 4 5 20 )  
 {(0.460248,0.000000)(0.000000,0.385657)(0.000000,0.529431)}  
 Sat[ 1 1 0 ] ( 11 12 2 )  
 35 {(0.137095,0.000000)(0.256775,0.000000)(0.000000,0.334871)}  
 Sat[ 0 1 0 ] ( 7 6 17 )  
 {(0.000000,0.022181)(0.035922,0.000000)(0.000000,0.160664)}  
 Sat[ 1 1 0 ]{1->0} ( 15 19 ) {(0.139189,0.000000)(0.000000,0.252686)}  
 Sat[ 0 0 0 ] ( 11 19 10 )  
 40 {(0.000000,0.027669)(0.000000,0.048216)(0.000000,0.022114)}  
 Sat[ 0 1 1 ]{1->1} ( 3 7 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 1 1 0 ]{0->0} ( 6 19 ) {(0.155602,0.000000)(0.000000,0.344271)}

Sat[ 1 1 1] ( 6 14 3 )  
 {(0.382772,0.000000)(0.336502,0.000000)(0.198773,0.000000)}  
 Sat[ 0 1 0] ( 3 12 5 )  
 {(0.000000,0.277829)(0.134304,0.000000)(0.000000,0.072072)}  
 5 Sat[ 1 0 0] ( 7 11 14 )  
 {(0.109487,0.000000)(0.000000,0.232547)(0.000000,0.118603)}  
 Sat[ 1 1 1]{1->1} ( 4 7 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 0 0 1] ( 14 11 19 )  
 {(0.000000,0.275409)(0.000000,0.461166)(0.156695,0.000000)}  
 10 Sat[ 0 1 1] ( 15 5 6 )  
 {(0.000000,0.113724)(0.290825,0.000000)(0.242636,0.000000)}  
 Sat[ 1 0 0]{2->0} ( 3 15 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 1 0 0]{0->1} ( 5 4 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 0 0 0] ( 7 5 3 )  
 15 {(0.000000,0.157818)(0.000000,0.118359)(0.000000,0.399380)}  
 Sat[ 0 1 1]{2->1} ( 15 7 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 0 1 1] ( 16 5 7 )  
 {(0.000000,0.177794)(0.363239,0.000000)(0.224446,0.000000)}  
 Sat[ 1 1 1]{0->1} ( 7 10 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 20 Sat[ 1 1 1]{2->1} ( 6 10 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 0 1 1]{0->1} ( 15 10 ) {(0.875849,0.000000)(0.701039,0.000000)}  
 Sat[ 1 1 1]{2->1}{1->0} ( 17 ) {(0.000000,0.000000)}  
 Sat[ 1 0 0]{1->0} ( 19 16 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 1 0 1] ( 14 5 16 )  
 25 {(0.294297,0.000000)(0.000000,0.181960)(0.342466,0.000000)}  
 Sat[ 1 1 1] ( 15 2 14 )  
 {(0.313217,0.000000)(0.129123,0.000000)(0.214929,0.000000)}  
 Sat[ 1 1 1] ( 4 19 15 )  
 {(0.370302,0.000000)(0.256469,0.000000)(0.574873,0.000000)}  
 30 Sat[ 0 1 0]{1->1} ( 17 15 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 0 1 1]{0->0}{1->0} ( 11 ) {(0.000000,0.000000)}  
 Sat[ 1 1 0] ( 6 20 14 )  
 {(0.241920,0.000000)(0.178172,0.000000)(0.000000,0.184900)}  
 Sat[ 0 1 1] ( 7 5 19 )  
 35 {(0.000000,0.385261)(0.568536,0.000000)(0.263448,0.000000)}  
 Sat[ 0 0 1] ( 12 19 16 )  
 {(0.000000,0.040295)(0.000000,0.172851)(0.069691,0.000000)}  
 Sat[ 1 0 0] ( 19 6 17 )  
 {(0.085650,0.000000)(0.000000,0.117566)(0.000000,0.580718)}  
 40 Sat[ 1 1 0]{0->1} ( 11 7 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 0 1 0]{1->1}{0->0}{0->0} ( ) {}  
 Sat[ 0 0 0] ( 17 19 14 )  
 {(0.000000,0.047935)(0.000000,0.027160)(0.000000,0.006917)}



Sat[ 1 1 1]{2->1}{1->0} ( 17 ) {(0.000000,0.000000)}  
 Sat[ 1 0 0]{2->1}{0->1} ( 4 ) {(0.000000,0.000000)}  
 Sat[ 1 0 0] ( 14 16 11 )  
 {(0.162331,0.000000)(0.000000,0.103121)(0.000000,0.274953)}  
 5 Sat[ 1 0 1]{2->1} ( 15 19 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 0 1 1]{2->1} ( 14 7 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 0 0 0] ( 5 11 19 )  
 {(0.000000,0.025623)(0.000000,0.088004)(0.000000,0.146588)}  
 Sat[ 0 1 1]{1->1} ( 12 17 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 10 Sat[ 0 0 0] ( 3 20 7 )  
 {(0.000000,0.217740)(0.000000,0.091491)(0.000000,0.072718)}  
 Sat[ 0 1 1] ( 4 19 12 )  
 {(0.000000,0.514423)(0.345659,0.000000)(0.569813,0.000000)}  
 Sat[ 1 0 0]{1->0} ( 12 11 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 15 Sat[ 1 0 1] ( 16 10 2 )  
 {(0.214278,0.000000)(0.000000,0.253506)(0.105754,0.000000)}  
 Sat[ 1 1 0]{2->0}{0->1}{0->0} ( ) {}  
 Sat[ 1 0 0] ( 6 10 11 )  
 {(0.052185,0.000000)(0.000000,0.065446)(0.000000,0.080983)}  
 20 Sat[ 1 1 1] ( 6 2 16 )  
 {(0.269502,0.000000)(0.140449,0.000000)(0.273674,0.000000)}  
 Sat[ 0 1 1]{2->1} ( 10 5 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 0 0 0] ( 6 16 3 )  
 {(0.000000,0.153496)(0.000000,0.151121)(0.000000,0.442187)}  
 25 Sat[ 0 1 1]{0->0}{1->0} ( 3 ) {(0.000000,0.000000)}  
 Sat[ 1 1 1]{2->1} ( 17 14 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 0 0 0] ( 12 15 11 )  
 {(0.000000,0.254530)(0.000000,0.192828)(0.000000,0.488396)}  
 Sat[ 0 1 1]{2->1}{0->1} ( 3 ) {(0.000000,0.000000)}  
 30 Sat[ 0 0 1] ( 15 2 19 )  
 {(0.000000,0.682279)(0.000000,0.871912)(0.650702,0.000000)}  
 Sat[ 0 1 1] ( 7 19 5 )  
 {(0.000000,0.385301)(0.263503,0.000000)(0.568603,0.000000)}  
 Sat[ 1 0 1] ( 4 11 10 )  
 35 {(0.206226,0.000000)(0.000000,0.412384)(0.165674,0.000000)}  
 Sat[ 1 0 1]{2->1} ( 17 12 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 0 1 1]{1->1} ( 4 6 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 1 1 0] ( 6 12 3 )  
 {(0.057565,0.000000)(0.050527,0.000000)(0.000000,0.116587)}  
 40 Sat[ 1 0 0] ( 16 7 17 )  
 {(0.035773,0.000000)(0.000000,0.021635)(0.000000,0.157314)}  
 Sat[ 0 1 1]{1->1} ( 15 20 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 1 0 1]{0->1} ( 11 16 ) {(0.000000,0.000000)(0.000000,0.000000)}

Sat[ 1 1 1]{0->1} ( 2 17 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 0 1 0]{0->1} ( 11 19 ) {(0.461910,0.000000)(0.000000,0.859248)}  
 Sat[ 0 0 1]{2->0} ( 4 19 ) {(0.000000,0.192757)(0.000000,0.493997)}  
 Sat[ 1 0 0]{1->0}{1->1} ( 15 ) {(0.000000,0.000000)}

5

New local fields:

[2] {0.241906,0.064586,0.693508 }  
 [3] {0.142141,0.090027,0.767832 }  
 [4] {0.440743,0.040789,0.518467 }  
 10 [5] {0.704188,0.055871,0.239942 }  
 [6] {0.621486,0.071373,0.307141 }  
 [7] {0.504546,0.022563,0.472891 }  
 [10] {0.241411,0.080226,0.678363 }  
 [11] {0.191888,0.041486,0.766625 }  
 15 [12] {0.536551,0.110903,0.352546 }  
 [14] {0.432144,0.192273,0.375584 }  
 [15] {0.766822,0.007727,0.225450 }  
 [16] {0.632986,0.066284,0.300729 }  
 [17] {0.059766,0.195511,0.744723 }  
 20 [19] {0.107804,0.008250,0.883946 }  
 [20] {0.392916,0.154975,0.452109 }

STEP 6:

25 fixing var 19 to 0 (local field: [19] {0.107804,0.008250,0.883946 })

Clauses in variable n. 19 appears:

16 Sat[ 0 0 0] ( 5 19 15 )  
 35 Sat[ 1 1 0]{1->0} ( 15 19 )  
 30 36 Sat[ 0 0 0] ( 11 19 10 )  
 38 Sat[ 1 1 0]{0->0} ( 6 19 )  
 43 Sat[ 0 0 1] ( 14 11 19 )  
 54 Sat[ 1 0 0]{1->0} ( 19 16 )  
 57 Sat[ 1 1 1] ( 4 19 15 )  
 35 61 Sat[ 0 1 1] ( 7 5 19 )  
 62 Sat[ 0 0 1] ( 12 19 16 )  
 63 Sat[ 1 0 0] ( 19 6 17 )  
 66 Sat[ 0 0 0] ( 17 19 14 )  
 70 Sat[ 1 0 1]{2->1} ( 15 19 )  
 40 72 Sat[ 0 0 0] ( 5 11 19 )  
 75 Sat[ 0 1 1] ( 4 19 12 )  
 87 Sat[ 0 0 1] ( 15 2 19 )  
 88 Sat[ 0 1 1] ( 7 19 5 )

97 Sat[ 0 1 0]{0->1} ( 11 19 )  
 98 Sat[ 0 0 1]{2->0} ( 4 19 )

The clauses in which s\_19=0 are satisfied and eliminated.

5

New surveys obtained by convergence of SP:

Sat[ 1 1 1]{2->1} ( 14 20 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 1 1 1]{2->0} ( 12 15 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 0 1 0] ( 11 4 7 )  
 10 {(0.000000,0.000000)(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 1 1 0]{1->1} ( 6 15 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 0 0 0] ( 10 5 15 )  
 {(0.000000,1.000000)(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 0 1 0]{1->1} ( 17 4 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 15 Sat[ 1 1 0]{0->0} ( 16 3 ) {(1.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 1 0 0]{1->0} ( 20 16 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 1 1 1] ( 11 7 4 )  
 {(0.000000,0.000000)(0.000000,0.000000)(1.000000,0.000000)}  
 Sat[ 1 0 0] ( 7 6 15 )  
 20 {(0.000000,0.000000)(0.000000,1.000000)(0.000000,0.000000)}  
 Sat[ 0 0 1] ( 10 12 20 )  
 {(0.000000,0.000000)(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 1 0 1] ( 15 4 11 )  
 {(1.000000,0.000000)(0.000000,0.000000)(0.000000,0.000000)}  
 25 Sat[ 1 0 1]{0->1} ( 4 6 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 0 1 0] ( 4 3 12 )  
 {(0.000000,0.000000)(1.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 1 0 0] ( 2 7 16 )  
 {(0.000000,0.000000)(0.000000,1.000000)(0.000000,0.000000)}  
 30 Sat[ 0 0 1] ( 3 17 4 )  
 {(0.000000,0.000000)(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 0 0 0]{1->0} ( 5 15 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 1 1 0]{1->1} ( 6 7 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 0 0 0] ( 4 20 7 )  
 35 {(0.000000,0.000000)(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 1 0 0] ( 6 17 16 )  
 {(0.000000,0.000000)(0.000000,1.000000)(0.000000,0.000000)}  
 Sat[ 1 0 1]{2->1} ( 5 15 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 1 1 0]{0->1} ( 4 15 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 40 Sat[ 0 1 1]{2->1} ( 12 5 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 1 0 0]{0->1} ( 11 2 ) {(0.000000,0.000000)(0.000000,0.000000)}  
 Sat[ 1 0 0] ( 7 10 20 )  
 {(0.000000,0.000000)(0.000000,0.000000)(0.000000,0.000000)}

```

Sat[ 1 0 1]{0->0}{0->0} ( 17 ) {(0.000000,0.000000)}
Sat[ 1 1 0]{2->0} ( 17 16 ) {(0.000000,0.000000)(0.000000,0.000000)}
Sat[ 1 1 0]{2->1} ( 16 20 ) {(0.000000,0.000000)(0.000000,0.000000)}
Sat[ 1 0 1]{0->1}{0->0} ( 5 ) {(0.000000,0.000000)}
5 Sat[ 0 1 1]{1->1} ( 5 4 ) {(0.000000,0.000000)(0.000000,0.000000)}
Sat[ 1 1 0] ( 6 17 14 )
{(0.000000,0.000000)(0.000000,0.000000)(0.000000,1.000000)}
Sat[ 1 0 1] ( 5 10 20 )
{(0.000000,0.000000)(0.000000,0.000000)(0.000000,0.000000)}
10 Sat[ 1 0 0] ( 4 5 20 )
{(0.000000,0.000000)(0.000000,0.000000)(0.000000,0.000000)}
Sat[ 1 1 0] ( 11 12 2 )
{(0.000000,0.000000)(0.000000,0.000000)(0.000000,0.000000)}
Sat[ 0 1 0] ( 7 6 17 )
15 {(0.000000,0.000000)(0.000000,0.000000)(0.000000,0.000000)}
Sat[ 1 1 0]{1->0}{1->0} ( 15 ) {(0.000000,0.000000)}
Sat[ 0 0 0]{1->0} ( 11 10 ) {(0.000000,0.000000)(0.000000,0.000000)}
Sat[ 0 1 1]{1->1} ( 3 7 ) {(0.000000,0.000000)(0.000000,0.000000)}
Sat[ 1 1 0]{0->0}{1->0} ( 6 ) {(0.000000,0.000000)}
20 Sat[ 1 1 1] ( 6 14 3 )
{(0.000000,0.000000)(0.000000,0.000000)(1.000000,0.000000)}
Sat[ 0 1 0] ( 3 12 5 )
{(0.000000,0.000000)(1.000000,0.000000)(0.000000,0.000000)}
Sat[ 1 0 0] ( 7 11 14 )
25 {(0.000000,0.000000)(0.000000,0.000000)(0.000000,0.000000)}
Sat[ 1 1 1]{1->1} ( 4 7 ) {(0.000000,0.000000)(0.000000,0.000000)}
Sat[ 0 0 1]{2->0} ( 14 11 ) {(0.000000,0.000000)(0.000000,0.000000)}
Sat[ 0 1 1] ( 15 5 6 )
{(0.000000,0.000000)(1.000000,0.000000)(0.000000,0.000000)}
30 Sat[ 1 0 0]{2->0} ( 3 15 ) {(0.000000,0.000000)(0.000000,0.000000)}
Sat[ 1 0 0]{0->1} ( 5 4 ) {(0.000000,0.000000)(0.000000,0.000000)}
Sat[ 0 0 0] ( 7 5 3 ) -
{(0.000000,1.000000)(0.000000,0.000000)(0.000000,0.000000)}
Sat[ 0 1 1]{2->1} ( 15 7 ) {(0.000000,0.000000)(0.000000,0.000000)}
35 Sat[ 0 1 1] ( 16 5 7 )
{(0.000000,0.000000)(1.000000,0.000000)(0.000000,0.000000)}
Sat[ 1 1 1]{0->1} ( 7 10 ) {(0.000000,0.000000)(0.000000,0.000000)}
Sat[ 1 1 1]{2->1} ( 6 10 ) {(0.000000,0.000000)(0.000000,0.000000)}
Sat[ 0 1 1]{0->1} ( 15 10 ) {(1.000000,0.000000)(0.000000,0.000000)}
40 Sat[ 1 1 1]{2->1}{1->0} ( 17 ) {(0.000000,0.000000)}
Sat[ 1 0 0]{1->0}{0->0} ( 16 ) {(0.000000,0.000000)}
Sat[ 1 0 1] ( 14 5 16 )
{(0.000000,0.000000)(0.000000,0.000000)(1.000000,0.000000)}

```

```

Sat[ 1 1 1] ( 15 2 14 )
{{(1.000000,0.000000)(0.000000,0.000000)(0.000000,0.000000)}}
Sat[ 1 1 1]{1->0} ( 4 15 ) {{(0.000000,0.000000)(0.000000,0.000000)}}
Sat[ 0 1 0]{1->1} ( 17 15 ) {{(0.000000,0.000000)(0.000000,0.000000)}}
5 Sat[ 0 1 1]{0->0}{1->0} ( 11 ) {{(0.000000,0.000000)}}
Sat[ 1 1 0] ( 6 20 14 )
{{(0.000000,0.000000)(0.000000,0.000000)(0.000000,0.000000)}}
Sat[ 0 1 1]{2->0} ( 7 5 ) {{(0.000000,0.000000)(0.000000,0.000000)}}
Sat[ 0 0 1]{1->0} ( 12 16 ) {{(0.000000,0.000000)(0.000000,0.000000)}}
10 Sat[ 1 0 0]{0->0} ( 6 17 ) {{(0.000000,0.000000)(0.000000,0.000000)}}
Sat[ 1 1 0]{0->1} ( 11 7 ) {{(0.000000,0.000000)(0.000000,0.000000)}}
Sat[ 0 1 0]{1->1}{0->0}{0->0} ( ) {}
Sat[ 0 0 0]{1->0} ( 17 14 ) {{(0.000000,0.000000)(0.000000,0.000000)}}
Sat[ 1 1 1]{2->1}{1->0} ( 17 ) {{(0.000000,0.000000)}}
15 Sat[ 1 0 0]{2->1}{0->1} ( 4 ) {{(0.000000,0.000000)}}
Sat[ 1 0 0] ( 14 16 11 )
{{(0.000000,0.000000)(0.000000,0.000000)(0.000000,1.000000)}}
Sat[ 1 0 1]{2->1}{1->0} ( 15 ) {{(0.000000,0.000000)}}
Sat[ 0 1 1]{2->1} ( 14 7 ) {{(0.000000,0.000000)(0.000000,0.000000)}}
20 Sat[ 0 0 0]{2->0} ( 5 11 ) {{(0.000000,0.000000)(0.000000,0.000000)}}
Sat[ 0 1 1]{1->1} ( 12 17 ) {{(0.000000,0.000000)(0.000000,0.000000)}}
Sat[ 0 0 0] ( 3 20 7 )
{{(0.000000,0.000000)(0.000000,0.000000)(0.000000,0.000000)}}
Sat[ 0 1 1]{1->0} ( 4 12 ) {{(0.000000,0.000000)(1.000000,0.000000)}}
25 Sat[ 1 0 0]{1->0} ( 12 11 ) {{(0.000000,0.000000)(0.000000,0.000000)}}
Sat[ 1 0 1] ( 16 10 2 )
{{(0.000000,0.000000)(0.000000,0.000000)(0.000000,0.000000)}}
Sat[ 1 1 0]{2->0}{0->1}{0->0} ( ) {}
Sat[ 1 0 0] ( 6 10 11 )
30 {{(0.000000,0.000000)(0.000000,0.000000)(0.000000,0.000000)}}
Sat[ 1 1 1] ( 6 2 16 )
{{(0.000000,0.000000)(0.000000,0.000000)(1.000000,0.000000)}}
Sat[ 0 1 1]{2->1} ( 10 5 ) {{(0.000000,0.000000)(0.000000,0.000000)}}
Sat[ 0 0 0] ( 6 16 3 )
35 {{(0.000000,1.000000)(0.000000,0.000000)(0.000000,0.000000)}}
Sat[ 0 1 1]{0->0}{1->0} ( 3 ) {{(0.000000,0.000000)}}
Sat[ 1 1 1]{2->1} ( 17 14 ) {{(0.000000,0.000000)(0.000000,0.000000)}}
Sat[ 0 0 0] ( 12 15 11 )
{{(0.000000,0.000000)(0.000000,0.000000)(0.000000,1.000000)}}
40 Sat[ 0 1 1]{2->1}{0->1} ( 3 ) {{(0.000000,0.000000)}}
Sat[ 0 0 1]{2->0} ( 15 2 ) {{(0.000000,0.000000)(0.000000,1.000000)}}
Sat[ 0 1 1]{1->0} ( 7 5 ) {{(0.000000,0.000000)(0.000000,0.000000)}}

```

```

Sat[ 1 0 1] ( 4 11 10 )
{(0.000000,0.000000)(0.000000,0.000000)(0.000000,0.000000)}
Sat[ 1 0 1]{2->1} ( 17 12 ) {(0.000000,0.000000)(0.000000,0.000000)}
Sat[ 0 1 1]{1->1} ( 4 6 ) {(0.000000,0.000000)(0.000000,0.000000)}
5 Sat[ 1 1 0] ( 6 12 3 )
{(0.000000,0.000000)(1.000000,0.000000)(0.000000,0.000000)}
Sat[ 1 0 0] ( 16 7 17 )
{(0.000000,0.000000)(0.000000,0.000000)(0.000000,0.000000)}
Sat[ 0 1 1]{1->1} ( 15 20 ) {(0.000000,0.000000)(0.000000,0.000000)}
10 Sat[ 1 0 1]{0->1} ( 11 16 ) {(0.000000,0.000000)(0.000000,0.000000)}
Sat[ 1 1 1]{0->1} ( 2 17 ) {(0.000000,0.000000)(0.000000,0.000000)}
Sat[ 0 1 0]{0->1}{1->0} ( 11 ) {(0.000000,0.000000)}
Sat[ 0 0 1]{2->0}{1->0} ( 4 ) {(0.000000,0.000000)}
Sat[ 1 0 0]{1->0}{1->1} ( 15 ) {(0.000000,0.000000)}

```

15

New local fields:

```

[2] {0.000000,0.000000,1.000000 }
[3] {1.000000,0.000000,0.000000 }
[4] {1.000000,0.000000,0.000000 }
20 [5] {1.000000,0.000000,0.000000 }
[6] {0.000000,0.000000,1.000000 }
[7] {0.000000,0.000000,1.000000 }
[10] {0.000000,0.000000,1.000000 }
[11] {0.000000,0.000000,1.000000 }
25 [12] {1.000000,0.000000,0.000000 }
[14] {0.000000,0.000000,1.000000 }
[15] {1.000000,0.000000,0.000000 }
[16] {1.000000,0.000000,0.000000 }
[17] {0.000000,0.000000,1.000000 }
30 [20] {0.000000,1.000000,0.000000 }

```

#### STEP 7:

All variables are completely and equally forced to take a precise value except var 20. We proceed by fixing the forced vars together:

35

```

fixing var 2 to 0 (0.000000,1.000000)
fixing var 3 to 1 (1.000000,0.000000)
fixing var 4 to 1 (1.000000,0.000000)
fixing var 5 to 1 (1.000000,0.000000)
40 fixing var 6 to 0 (0.000000,1.000000)
fixing var 7 to 0 (0.000000,1.000000)
fixing var 10 to 0 (0.000000,1.000000)
fixing var 11 to 0 (0.000000,1.000000)

```

fixing var 12 to 1 (1.000000,0.000000)  
fixing var 14 to 0 (0.000000,1.000000)  
fixing var 15 to 1 (1.000000,0.000000)  
fixing var 16 to 1 (1.000000,0.000000)  
5 fixing var 17 to 0 (0.000000,1.000000)

All clauses in which  $s_2=0$ ,  $s_3=1$ ,  $s_4=1$ ,  $s_5=1$ ,  $s_6=0$ ,  $s_7=0$ ,  $s_{10}=0$ ,  
 $s_{11}=0$ ,  $s_{12}=1$ ,  $s_{14}=0$ ,  $s_{15}=1$ ,  $s_{16}=1$ ,  $s_{17}=0$  are satisfied and  
eliminated.

10

All clauses are eliminated and the formula is completely satisfied  
independently on the value taken by var 20.

FINAL SATISFYING ASSIGNMENT:

15  $X=(0,0,1,1,1,0,0,1,0,0,0,1,1,0,1,1,0,1,0,x)$

( $X_{20}$  can take both the values 0 and 1.)